Modern Packaging

JANUARY 1944

WHAT SINGLE CONTAINER stands up under

...ALL THE TESTS OF WAR?

1. CONTENTS ARRIVE SAFELY—when they're packed in cans. That's why food for our fighting men goes overseas in cans. Yes, food and sulfa, blood plasma, first-aid kits, gasoline, signal flares—and so on. Hundreds of items that must have sure protection against germs, dirt, gas poisons, moisture, heat and cold.

2. WHEREVER THE BOYS ARE . . . in the sizzling tropics . . . the frozen arctic . . . on the fighting fronts . . . the sturdy can goes too. A large variety of essential supplies moves forward to combat troops under the dependable protection of the familiar "tin can"—which is actually more than 98% steel and less than 2% tin.

3. WHAT A BEATING! Under fire . . . over rocky terrain . . . the problems of supply call for a container that will stand up under terrific punishment. Because vital war needs get the first call on cans today, many civilian items such as talcum, beer, tea, oil, and tobacco are packed temporarily in substitute containers.

4. FOOD TO FIGHT ON! The goodness, the freshness, the nourishment of foods are ideally safeguarded by cans. Approximately six pounds of food are authorized for every U. S. fighting man, every day. His food must be pure—safe. Most of food is protected in that familiar tin-coated steel container—the can.

...ALL THE TESTS OF PEACE?

5. CONTENTS KEEP SAFELY—ready to use at your convenience. Cans are hermetically sealed—non-porous. They protect against loss of flavor, color, vitamins, and minerals. And they're so easy to heat or ice, so easy to dispose of. Women wise in the ways of housekeeping know that no other container is so convenient as the can.

6. WHEREVER YOU ARE, whatever the season, the can makes available an exciting variety of foods to help keep meals tempting and nutritious, at very little cost. And canned foods are so readily digestible . . . excellent for children because they retain the high vitamin and mineral content of the fresh food itself.

7. THEY JUST DON'T BREAK! Drop a can and there's no harm done! Stack one on top of another in tight closet space. Cans are easy to handle in every way—easy to carry, easy to store, easy to open. That is just part of the reason why some forty-five million cans are normally used every single day in this country.

8. FOOD TO GROW ON! Meats, fish, and milk . . . canned foods are selected for quality. Many fruits and vegetables are specially grown from pedigreed seed . . . preserved at the peak of their flavor goodness. Delicious—nutritious—inexpensive. Buy wisely—don't waste . . . and save your cans for salvage.

CAN MANUFACTURERS INSTITUTE, INC.

NO OTHER CONTAINER  *PROTECTS LIKE THE CAN*

AFTER VICTORY—THEY'LL ALL BE BACK!

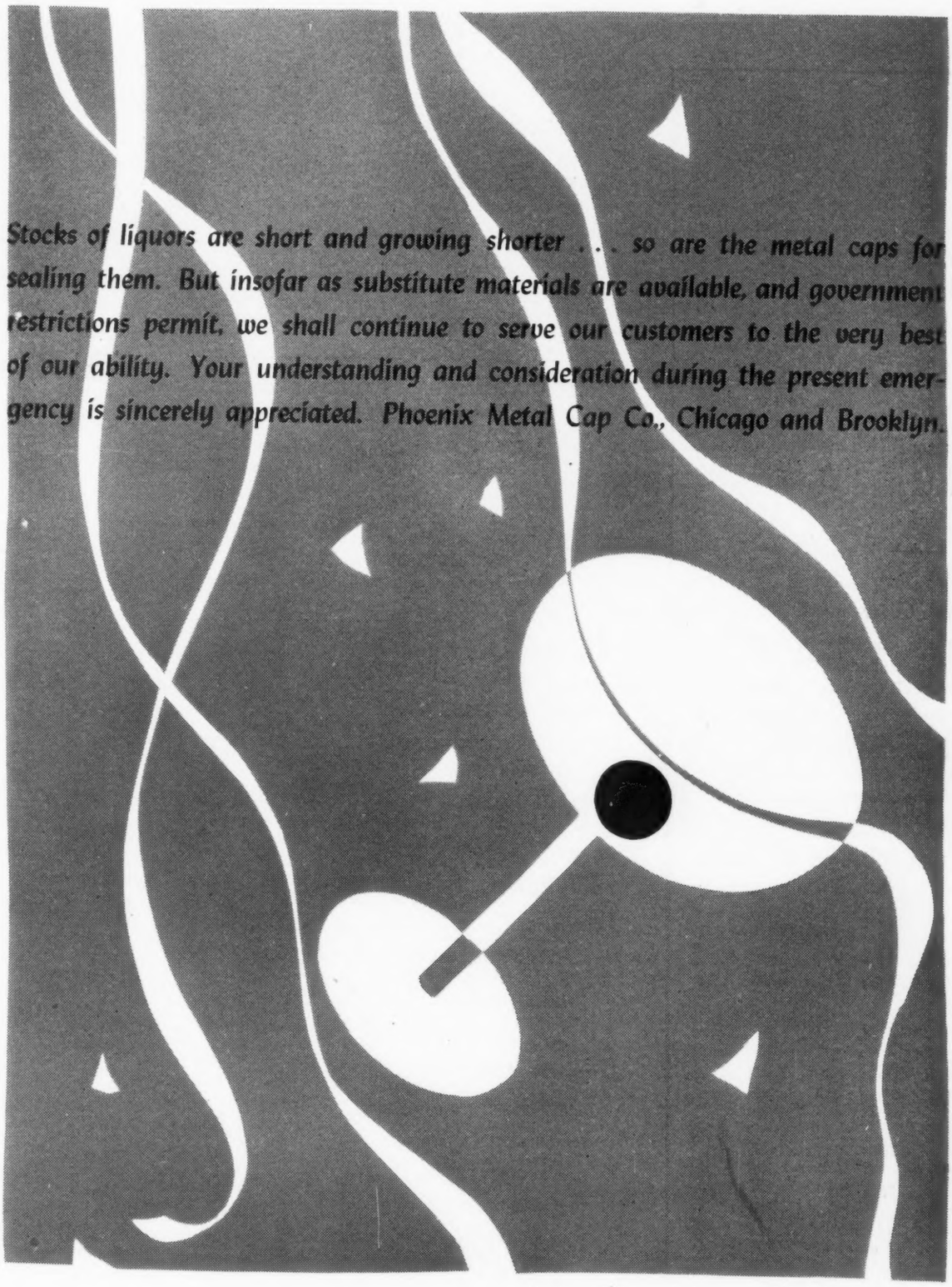
THIS IS THE FIRST of a series of advertisements presenting the tin can to the American public as the ideal protective container. It appears currently in national magazines in four colors, reaching practically every person in the United States.

As one of the sponsors, American Can Company brings this campaign to your attention. It will increase consumer understanding of the vital role the can is playing in war and will play in peace. For further details, write—Can Manufacturers Institute, Inc., 60 East 42nd Street, New York 17, N. Y.

CANCO

AMERICAN CAN COMPANY

230 Park Avenue, New York 17, N. Y.


Stocks of liquors are short and growing shorter . . . so are the metal caps for sealing them. But insofar as substitute materials are available, and government restrictions permit, we shall continue to serve our customers to the very best of our ability. Your understanding and consideration during the present emergency is sincerely appreciated. Phoenix Metal Cap Co., Chicago and Brooklyn.

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Modern Packaging

VOLUME 17 JANUARY 1944 NUMBER 5

PENICILLIN

The spectacular new product, penicillin, has brought with it different methods of solving its packaging problems. The need for this product in large quantities has been so urgent that the Government has instructed various producers to adopt for the time being the methods of packaging for which each one is equipped, prior to the adoption of a standardized method. Watch for a complete discussion of this packaging in the February issue of MODERN PACKAGING.

This Month's Cover

Many of the qualities of good packaging are embodied in the Army Air Forces life raft and equipment, shown being loaded on a plane. The packages are a lesson in compactness and their bright yellow color provides maximum visibility. Photo, courtesy of U. S. Army Signal Corps.

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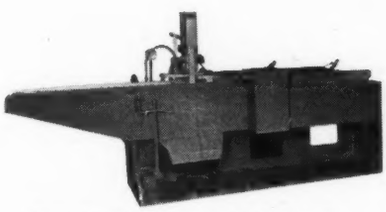
COMING . . . A BETTER WORLD . . . AFTER VICTORY

. . . THROUGH TELEVISION



Cartoning Machine for Colgate's Cup Soap

194?'s PACKAGE will be changed.

The nearby reality of new world markets, aided by the limitless scope of Television, will create the demand for new packaging materials, new shapes and sizes. In turn new packaging ideas will create the need for new high speed automatic machines to mass produce these packages at a low cost per unit.

Redington will be ready . . . as it always has since 1897. Devoted almost exclusively to Victory for America, Redington has sharpened its mechanical and engineering skills by making machine tools of war.

When peace comes again, and you are ready with your post-war product, more than ever, it will be well to remember, "If It's Packaging, Try Redington First."

Technicians believe that Television awaits only peacetime to become everybody's hobby. Quickly maturing under the stress of war, Television may soon place America on the edge of a new era.

Improvements by leaps and bounds have endowed even distant "televisual" shots with the clear focus of good photographs—the recent addition of color may give life-like hues to all post-war telecasting. On the way to being solved is the problem of reproducing clear images on larger screens. Thus, life-size dramas will be pumped direct into the homes from all parts of the world.

Peace will see radio manufacturers retooling to turn out the millions of Television sets America is going to demand. For Television is radio, theatre and movies all in one. It brings the world to everyone's doorstep and everyone's doorstep to the rest of the world. In the words of the magazine "Parade," Television, if used effectively, will be a great leveler of barriers, a destroyer of prejudice.

F. B. REDINGTON CO., (Est. 1897) 110-112 So. Sangamon St., Chicago, Ill.

REDINGTON

PACKAGING MACHINES

FOR CARTONING · WRAPPING · SPECIAL PACKAGING

His Needs *First!*

TO all of our customers we say THANKS for understanding the shortage of Apaco products while we rush corrugated containers, folding boxes and other paper items to the armed forces!

TODAY we cannot completely fill all the orders of our customers because of restrictions and shortages of raw materials, war work, and the resulting production difficulties.

When VICTORY is won, we'll fill your orders again . . . as fully and prompt as ever . . . and with a deep appreciation for your loyalty to us.

★

ATLANTA PAPER COMPANY

ATLANTA, GEORGIA

Corrugated Shipping Cases — Apaco Established 1868 — **Folding Cartons . . . Multiwall Bags . . . Garment Bags . . . Grocery Bags . . . Textile Packages**

Branches:

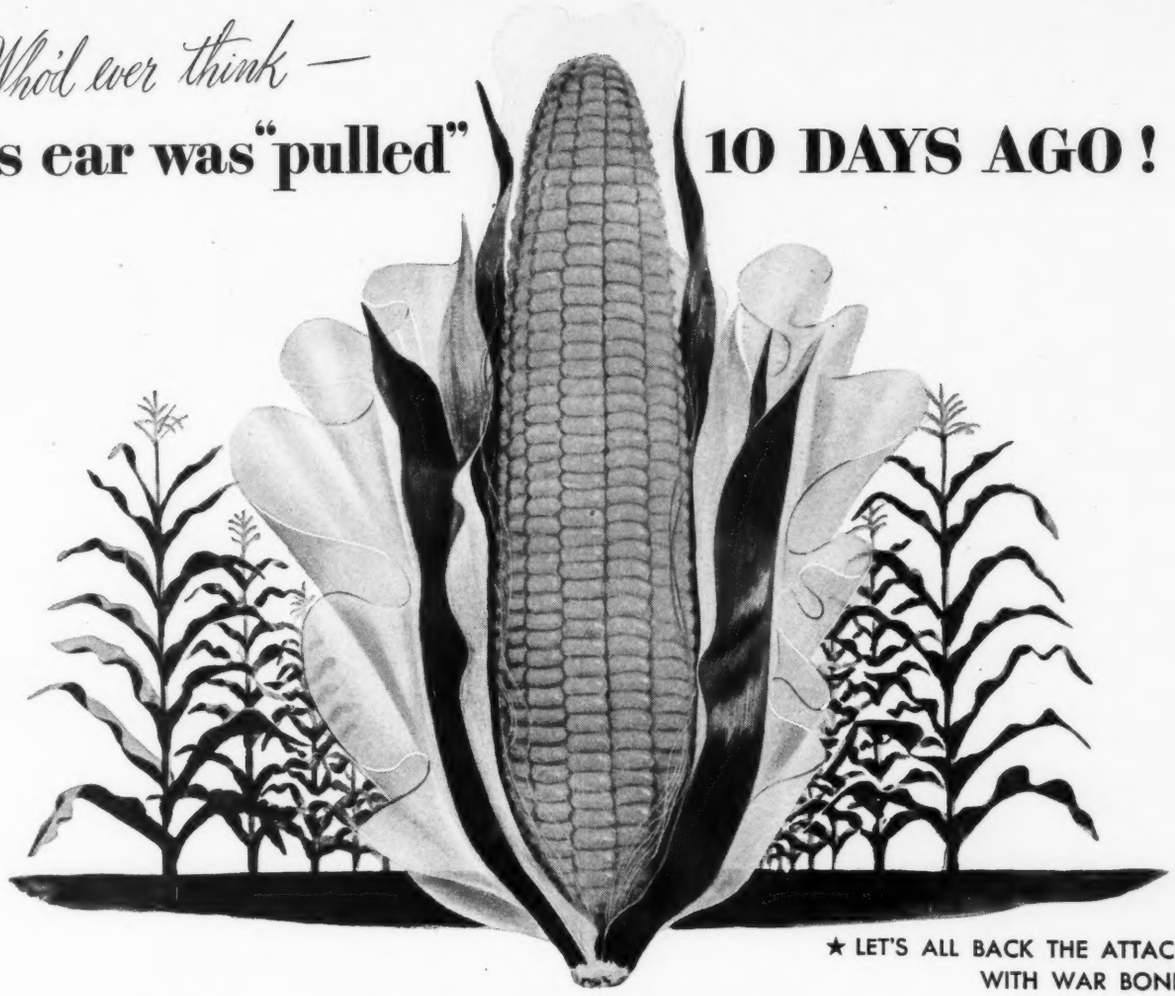
AUGUSTA PAPER CO., Augusta, Ga.
BIBB PAPER CO., Macon, Ga.
VOLUNTEER STATE PAPER & BOX CO., Knoxville, Tenn.
GEORGIA-ALABAMA PAPER CO., Columbus, Ga.

Associates:

MEMPHIS PAPER CO., Memphis, Tenn.
LITTLE ROCK PAPER CO., Little Rock, Ark.

Who'd ever think —

this ear was "pulled" 10 DAYS AGO!



★ LET'S ALL BACK THE ATTACK—
WITH WAR BONDS ★

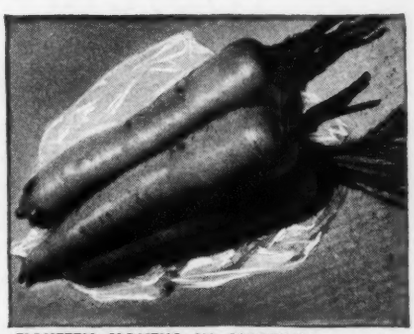
FRESH corn on the cob is at its best when popped into a boiling kettle, minutes, only, after it is "pulled" and husked.

Pliofilm is the way to bring this August delight of the gardener to market for all to enjoy. Sweet corn, wrapped in *Pliofilm*, will hold that moment of goodness for 10 whole days from farmer's field to consumer's kettle.

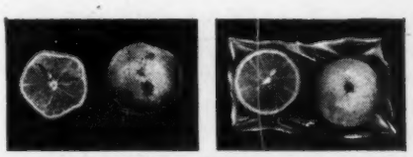
And moisture-proof, spoilage-proof, flavor-tight *Pliofilm* protection applies not only to the freshness of corn — but to many fruits and vegetables — oranges, grapefruit, apples, carrots, cabbage, meats, bakery goods and soups — to name just a few.

In fact, *Pliofilm* answers more perfectly than any other transparent and glossy film, the packaging industry problem of moisture control. Not only does it keep desired moisture *in* but it keeps moisture *out*.

That means that there are literally thousands of products, outside of the food industry, for this low-cost protective packaging material. Right now all the *Pliofilm* we can make is used for vital war packaging. But in the peace to come it will package not only foods but precision instruments, pharmaceuticals, chemicals, tobacco, cables and all moisture-sensitive products.



EIGHTEEN MONTHS IN PLIOFILM! Remember what happens to ordinary unwrapped carrots after a week in the icebox? These Pliofilm-protected carrots were stored at 37°—for a year and a half. Official report: "Loss of weight was negligible, and the carrots held their color perfectly — retained their firmness and vitamin content."



ALL FOUR MONTHS OLD! But the still-perfect oranges were "stretch-wrapped" in Pliofilm. Official report: "The oranges wrapped in Pliofilm lost less than 2% of their initial weight after four months' storage — the original taste and appearance of the fruit were unchanged—Vitamin C content very slightly diminished."

THINGS ARE BETTER PACKAGED IN

Pliofilm

GOODYEAR
THE GREATEST NAME IN RUBBER

Pliofilm—T. M. The Goodyear Tire & Rubber Company

A Supreme Mistake.. BY THE "SUPER RACE"

A shipment of ammunition left the wharves of a German port destined for Allied destruction! Yet Nazi master minds failed again. The inferior adhesive used on carefully constructed ammunition cartons gave way to the rigors of a war-hard sea journey!

It took American ingenuity to produce Glu-Weld . . . an adhesive completely weather proof, climate proof, and water proof under sustained immersion tests. Glu-Weld adhesives, used on side seams or closures, combine with board to make a perfect packaging unit. Adjustable for most types of automatic gluers, Glu-Weld is the choice of prominent oversea shippers who conform with U. S. Army Specifications 100-14A and Navy Specifications 39P16a, as well as many more specifications applying to individual contracts.

Let's not duplicate the oversight of our enemies! Let's remember . . . to "pass the ammunition" and other vital material of war in Glu-Weld sealed containers is a victory-worthy idea!

Write today for booklet "GW-1", which will tell you the full story on GLU-WELD.

Or better yet, send us a small sample of your board. We will, in turn, forward a sample of the proper GLU-WELD formulation.

GLU-WELD

IN THE MIDWEST

The F. G. Findley Company

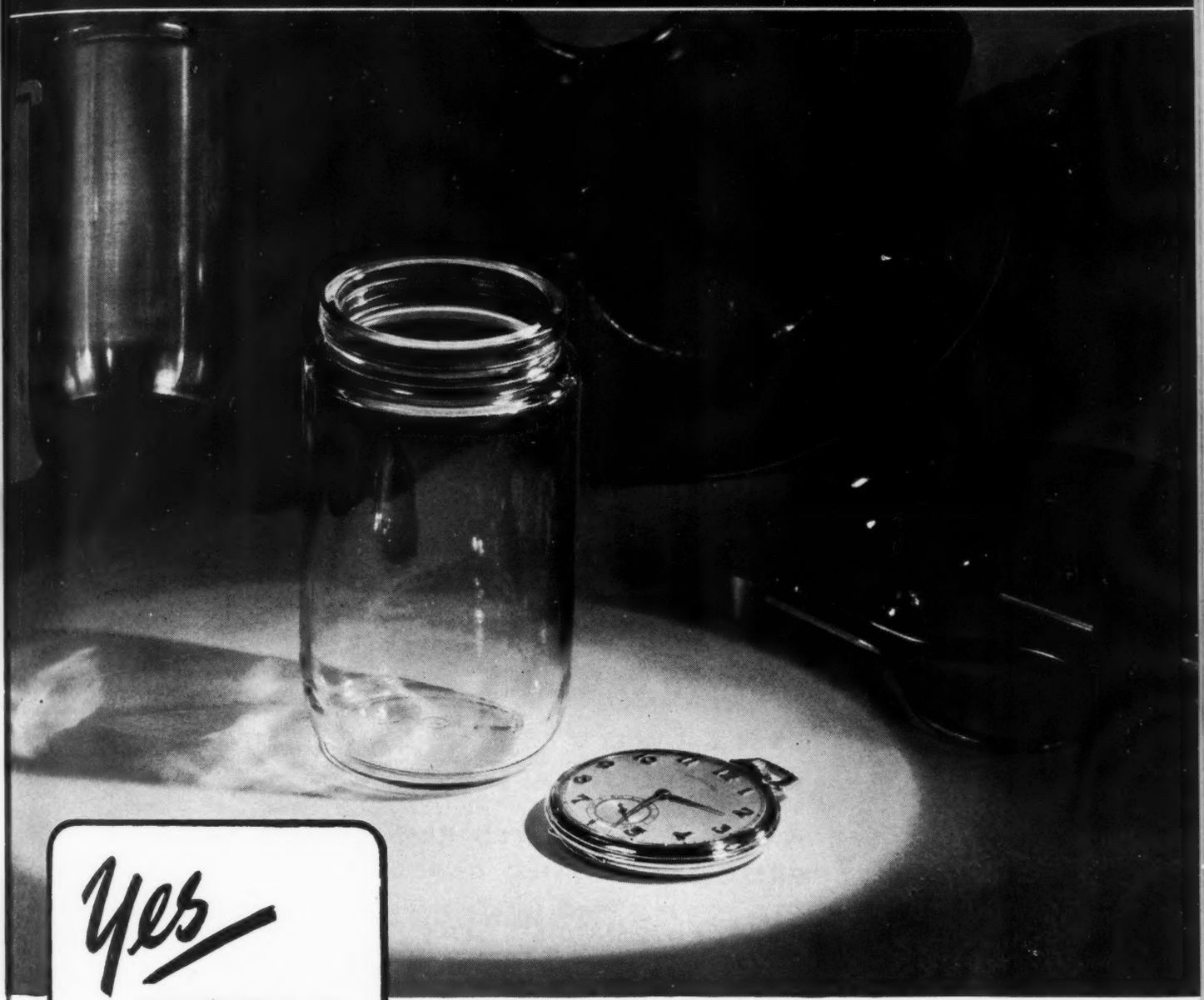
1230 NO. 10th STREET • MILWAUKEE 5, WIS.

IN THE EAST

Union Paste Company

1605 HYDE PARK AVENUE • HYDE PARK 36, MASS.

MADE WITH WATCHMAKER'S CARE



Yes THERE'S A DIFFERENCE IN GLASS

MOST people regard a watch as just about the last word in skillful, precise workmanship. But what surprises many—even those familiar with glass—is to learn that the glassmaker is a precision worker, too. He uses the same care as the watchmaker in keeping his product within required limits of measurement.

In the manufacture of side-seal finish jars, for example, the accuracy of Armstrong's moldmakers is just as important, tolerance-wise, as in the making of a fine watch. For this type of finish demands finest workmanship if it is to be sealed adequately.

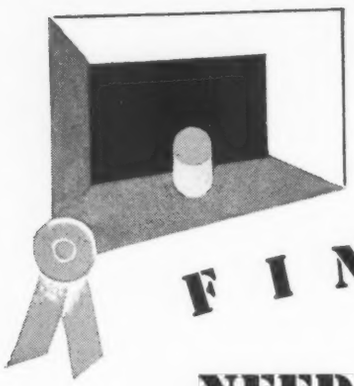
Most glass craftsmen take a watchmaker's pride in meeting tolerance requirements—a difficult thing to do when materials are worked at high temperatures, where even the *slightest* temperature change can make a tremendous difference. And Armstrong strives for an especially high degree of exactness in such details as the finish, because accuracy here helps to assure a tight seal. Accuracy is just one of the many qualities of fine glassware. Others include thermal shock resistance, distribution, degree of brilliance, clarity, and so on.

Added together, these qualities make a big difference in the ware you buy. That's why we say, "There *is* a difference in glass."

For a complete story of the making of top-quality glassware, send for your free copy of "Men and Glass." Write the Armstrong Cork Company, Glass and Closure Div., 5901 Prince Street, Lancaster, Penna.

ARMSTRONG'S GLASS

and **ARMSTRONG'S CLOSURES**



FINE PACKAGES NEED EXTRA SHIPPING PROTECTION

"On-to-Sta" gummed tapes not only seal shipments much more quickly—but they seal them securely, giving the additional protection that fine packages need.

In our complete line of gummed tapes is one to suit your purpose:

- GUMMED SEALING TAPE, PLAIN & PRINTED ★
- "CARPAC" REINFORCED SEALING TAPE ★
- HEAVY GUMMED KRAFT ★
- GUMMED CAMBRICS ★
- "INERWOV SOLSEAL" REINFORCED WATERPROOF TAPE ★
- ASPHALT LAMINATED REINFORCED WATER-PROOF WRAPPING PAPER ★
- CREASED GUMMED STAY ★
- GUMMED HOLLANDS ★
- COMBINING ★

If you tell us your problem, we will send you samples of the proper sealing tape.

ATLANTIC GUMMED PAPER CORP.

MANUFACTURERS OF *"On-to-Sta"* GUMMED PAPERS

PLANT & MAIN OFFICE: ONE MAIN ST., BROOKLYN 1, N. Y.

BRANCH OFFICES: PHILADELPHIA · PITTSBURGH · CHICAGO · BOSTON · BUFFALO · ATLANTA · LOS ANGELES · HAVANA

WHAT IS THE CLIMATE *inside* YOUR PACKAGE?

THAT'S what counts! Outside, the climate may range from steamy, soaking tropics to the thirsting arid air of the desert—with only the walls of your package to preserve the INSIDE climate to protect your product.

No one film or foil or paper can answer all packaging problems. That's why Dobeckmun offers a whole range of packaging materials, plus the many converting techniques and varied equipment required.

Dobeckmun's testing facilities, fully equipped and staffed, can duplicate hot humidity, creaking coldness or even the rarefied air of the stratosphere, to prove that the packaging suggestion prepared for you is the best for your product and problem.

Will your package stand up? Can it be improved? Send us a few loaded samples for tests and ideas. It involves no obligation.

DOBECKMUN SPECIALTIES

PACKAGE DESIGN—to provide better sales appeal, tested protection and practical handling.

CELLOPHANE BAGS—from ounces to gallons—printed or plain—single or duplex.

"TRITECT" CELLOPHANE—wax-laminated film for extra protection.

LAMINATED FOILS—combined with cloth, paper or film.

PRINTED FILMS AND FOILS—in sheets and rolls.

LABORATORY TESTING — complete facilities for testing packages under all conditions of climate and service. Insure the right answer by pretesting your package.

THE DOBECKMUN COMPANY

CLEVELAND, OHIO • OAKLAND, CAL.

PAPER'S

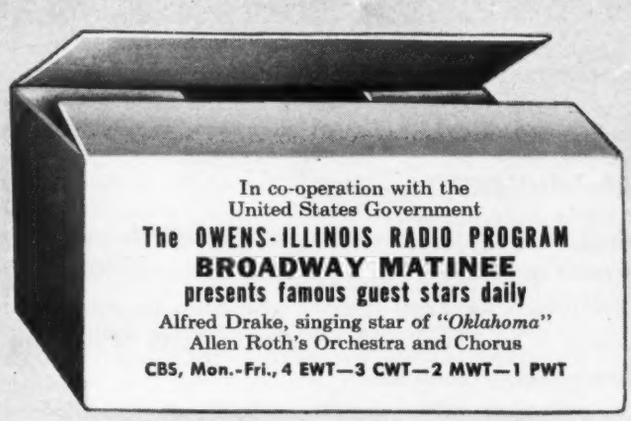
The critical paper situation is the prime "bottle neck" in the flow of glass containers, essential in the distribution of packaged products. Corrugated paper cartons are as necessary for the delivery of empty and filled bottles and jars as are the raw materials used to make glass.

As one of the largest makers and initial users of corrugated reshipping cartons, Owens-Illinois long ago started waste-reduction campaigns in every plant, effecting notable savings of paper. Owens-Illinois workers, fully aware of the need, not only co-operated in cutting waste but also brought in old newspapers and magazines from their homes to ship to paper-makers.

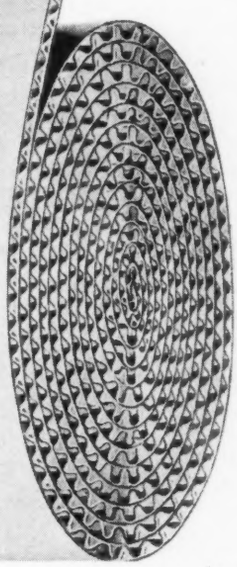
***PAPER IS A VITAL PART OF THE WAR PICTURE**

PART* in the Picture

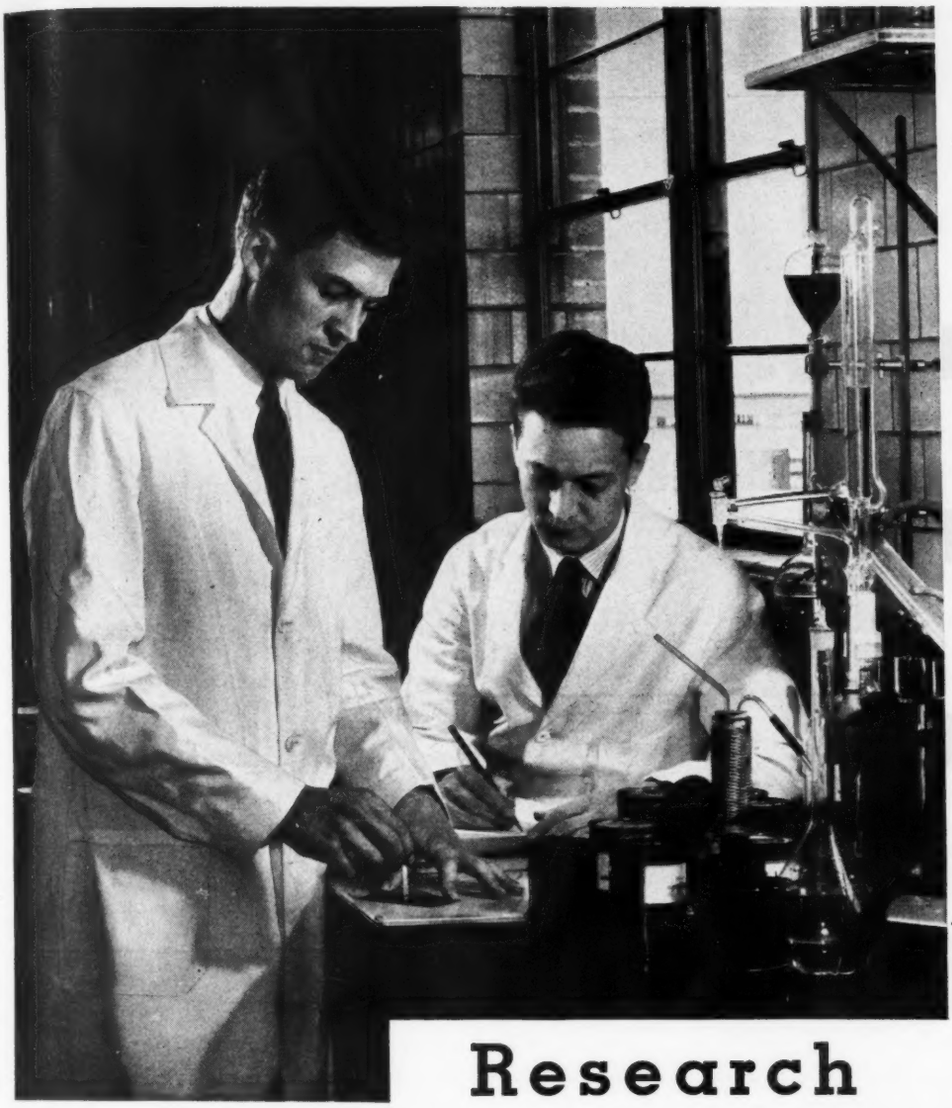
The paper situation is of serious importance to every manufacturer and distributor of packaged products. Having done our utmost in saving paper, we feel justified in calling your attention to the urgency of the situation. Every manufacturer, wholesaler and retailer who ships or receives cartons can do his part by care in handling, by reusing them and by supporting salvage campaigns.



In co-operation with the
United States Government
The OWENS-ILLINOIS RADIO PROGRAM
BROADWAY MATINEE
presents famous guest stars daily
Alfred Drake, singing star of *"Oklahoma"*
Allen Roth's Orchestra and Chorus
CBS, Mon.-Fri., 4 EWT—3 CWT—2 MWT—1 PWT



OWENS-ILLINOIS
GLASS COMPANY TOLEDO, OHIO



PARCO LUBRIZING

Parco Lubrizing is a chemical treatment for iron or steel friction surfaces, in mechanical assemblies, that improves bearing properties, and retards wear.

BONDERIZING

Bonderizing is a chemical treatment for iron, steel, or zinc that insures cohesion of applied coatings of paint, enamel or lacquer, resulting in longer-lived, rust-resistant finish.

PARKERIZING

Parkerizing is a chemical treatment for iron or steel, resulting in a surface that can be stained, oiled, waxed or painted and is substantially resistant to rust.

Research
Developed Bonderized Steel For Cans
A New Material for Food Packaging

For over a quarter of a century practical developments in the art of protecting iron and steel from rust have come from the Parker Research Laboratories in a steady stream. Each new improvement has meant more service to the consumer—in most cases at lower cost. Each year more and more money, time, and effort have been poured back into research to make iron and steel serve man better, and more economically by protecting them from rust.

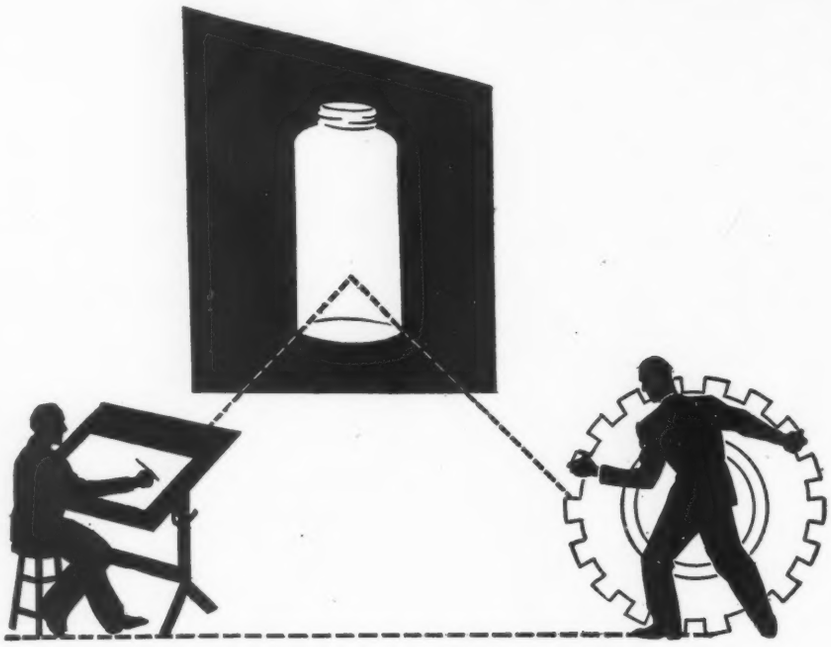
Parker products and processes are protecting millions of items and parts of military equipment—and by so doing are rendering important war service—yet the development of Bonderized steel for the manufacture of cans, closures and containers comes as an outstanding new and valuable Parker achievement.

Canned food is of vital importance in both military and civilian life. It is one of our critical problems and the Bonderized steel can is contributing toward its solution. For months American steel mills have been producing Bonderized sheet steel for the can and container industry. The research departments of leading can and steel manufacturers have contributed substantially to this development and research still goes on to improve the product, technique of use and extend its utility.

War's end will release Bonderized sheet steel for use in a multitude of products where greater ease of fabrication, greater endurance in service will be vital *selling* factors!

PARKER RUST PROOF COMPANY, 0000 E. MILWAUKEE, DETROIT 11, MICHIGAN

PARKER PRODUCTS CONQUER RUST



NEW AND BETTER

Carr-Lowrey's record of more than 50 years of growth and development results not only from the progressive principles around which this business was originally established, but from a continuous reaching out for new and better ways of doing the job.

To you, who may be considering a new source of supply for your glass containers, this has a very pertinent meaning. As a client of Carr-Lowrey, you will enjoy all the benefits of working with an organization of skilled and experienced craftsmen, thoroughly familiar with the newest and best techniques for serving you economically and efficiently.

If you are a manufacturer of drugs, cosmetics, food or household products, and are looking ahead to those highly competitive post-war years when glass containers of distinctive quality will be an essential part of your marketing strategy, we invite your inquiries.

CARR-LOWREY GLASS CO.

Factory and Main Office: BALTIMORE, MD. *New York Office:* 500 FIFTH AVE. *Chicago Office:* 1502 MERCHANDISE MART

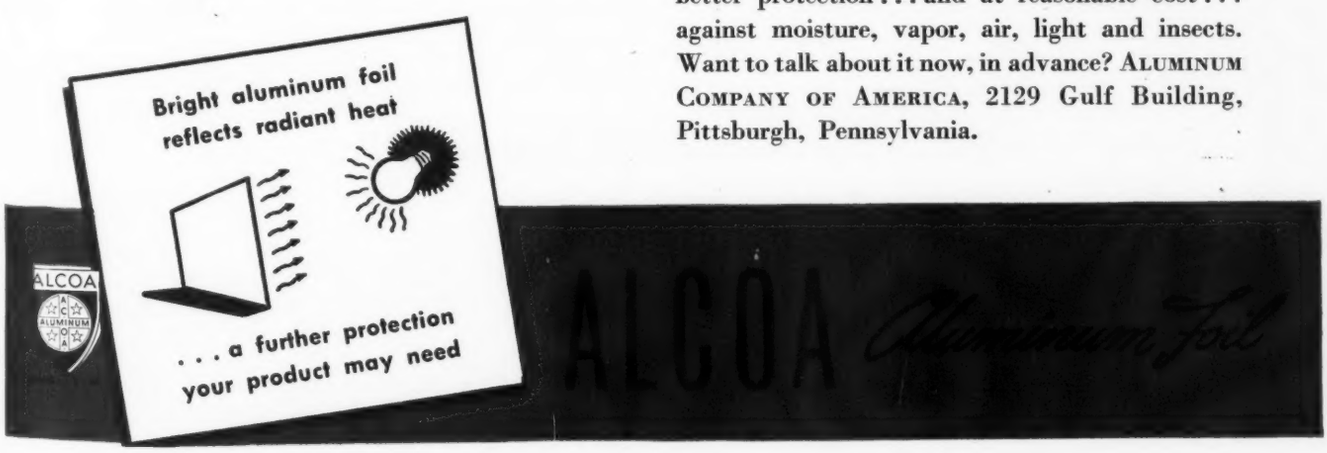
Dehydrated pure lemon juice (also orange and grape) is simply mixed with cold water and sugar in a canteen cup for a refreshing drink. Dull lacquer coating keeps bright aluminum foil from being spotted by enemy planes when discarded.

Nothing else would do...

Boiled down to four words, that's what had to be proved in order to get aluminum foil for packaging fruit powders for Army field rations. Tests and experience *did* prove it... no other material or combination of materials, even in double and triple laminations, equalled aluminum foil in moisture-vapor protection.

Millions of these Alcoa Aluminum Foil packets are now being made weekly. They consist of foil with acetate film on one side and thermoplastic seal coating on the other.

When Alcoa Aluminum Foil is again available for civilian packaging, heat-sealed packets, bags, tapes, liners and envelopes will give your product better protection... and at reasonable cost... against moisture, vapor, air, light and insects. Want to talk about it now, in advance? ALUMINUM COMPANY OF AMERICA, 2129 Gulf Building, Pittsburgh, Pennsylvania.



Ambassador for a thousand products

The wholesaler's salesman is the ambassador for yours and 999 other products. This does not permit him to push them all.

Hence, the manufacturer must win retailer support for his own product. In accomplishing this end, Bemis Deltaseal Bags have an outstanding record.

Their colorful brand printing adds eye appeal. Their handy pouring spout wins quick consumer preference. Their square ends make them easy to stack on shelves or in mass displays. Hence, retailers get behind products packed in Bemis Deltaseal Paper Bags.

BEMIS BRO. BAG CO.

Headquarters for the

DELTASEAL System of PACKAGING

Minneapolis, Minnesota

OFFICES: Baltimore • Boston • Brooklyn • Buffalo • Charlotte • Chicago • Denver • Detroit • E. Pepperell • Houston • Indianapolis • Kansas City • Los Angeles • Louisville • Memphis • New Orleans • New York City • Norfolk • Oklahoma City • Omaha • Peoria • St. Louis • Salina • Salt Lake City • San Francisco • Seattle • Wichita

Out of Great Emergencies . . . New Leaders Arise

AMONG FREE MEN, always, new leaders arise to meet the challenge of great emergencies. These are the men who deny the "don'ts" and the "can'ts" of conservative years . . . who dare the impossible.

There were several such "impossibilities" in the aluminum industry, before Pearl Harbor. It was "impossible" that America's war needs could ever exceed what was then considered a huge national production capacity . . . or that imports of foreign bauxite could be stopped . . . or that our bauxite could be turned into purest aluminum.

But far back in 1940, a single company challenged all three of those "impossibilities." Reynolds, then the world's largest aluminum foil producer, built a huge new plant in Alabama . . . began mining domestic ore . . . and deliberately prepared to process low-grade bauxite. Today, this is the only plant in the U. S. where bauxite comes in at one end, *and aluminum sheet rolls out the other!*

As war came, the huge rewards of this pioneering became apparent even to the most skeptical. But Reynolds kept on breaking precedents. From earth to aluminum sheet was one step. They dared the next step . . . earth to sheet *to finished aircraft parts.* Now Reynolds feeds endless streams of airplane parts to assembly lines throughout America!

And there is even more to this story than the quantity production of aluminum ingot, aluminum sheet and finished aircraft parts. The wings of our victorious airmadas demand quality as well as quantity . . . they must be made ever lighter and stronger. Reynolds engineers are preparing to announce new miracles of metallurgy. Further "impossibilities" will be conquered . . . in Reynolds' steady progress toward Leadership in Aluminum.

REYNOLDS ALUMINUM

OUT OF THE GROUND INTO THE SKY

REYNOLDS METALS COMPANY
GENERAL OFFICES, RICHMOND, VA.
38 PLANTS IN 13 STATES

AMERICA'S NEW SOURCE OF ALUMINUM

BUT NOT GOOD ENOUGH TODAY

On March 10, 1876, Alexander Graham Bell spoke the first words over his new invention, "Mr. Watson, come here, I want you." Later, a newspaper telephone dispatch from Salem to Boston electrified the scientific world. A miracle then, but elementary compared to the electronic achievements of today.

NEUTRAGLAS... offering the highest resistance to solvent action and chemical attack...was developed by Kimble because no glassware can be just "good enough" if better is obtainable.

Standardize NOW *on Kimble Ampuls, Serum Vials, Serum Bottles and Clinical Glass containers of* NEUTRAGLAS.

• • • *The Visible Guarantee of Invisible Quality* • • •

KIMBLE GLASS COMPANY - - - VINELAND, N. J.

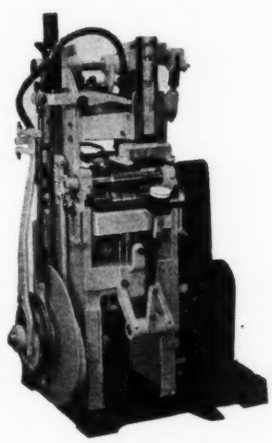
They've gone to WAR jobs—

—and deft MECHANICAL fingers do their work at LESS cost now!

The two empty chairs on the Labeling line didn't *have* to be filled . . . the essential work the two girls did is now being done even better, because "the boss" knew that LABELRITES did a precision registry job without the need for "container wipers," or "repositioning." W.P.B. Order L-292, Section III permits the manufacture of Labelrites in the FOOD field; so Labelrites can be had to replace scarce help . . . The girls you have on the labeling line as "repositioners" or "wipers," can be transferred to *other* jobs. You'll be gratified at the trouble-free, low cost and speedy pace of LABELRITES for sealing OR labeling cans, jars or cartons.

And what's more, you'll enjoy that trouble-free economy for years to come! Remember that ONE Labelrite, with its petty-cash set of change-parts can handle a wide range of sizes (labels or containers) and operates at speeds of 50 to 120 per minute.

Send for details. We have Labelrites available, awaiting only parts-specifications as to size and shape of labels and containers.



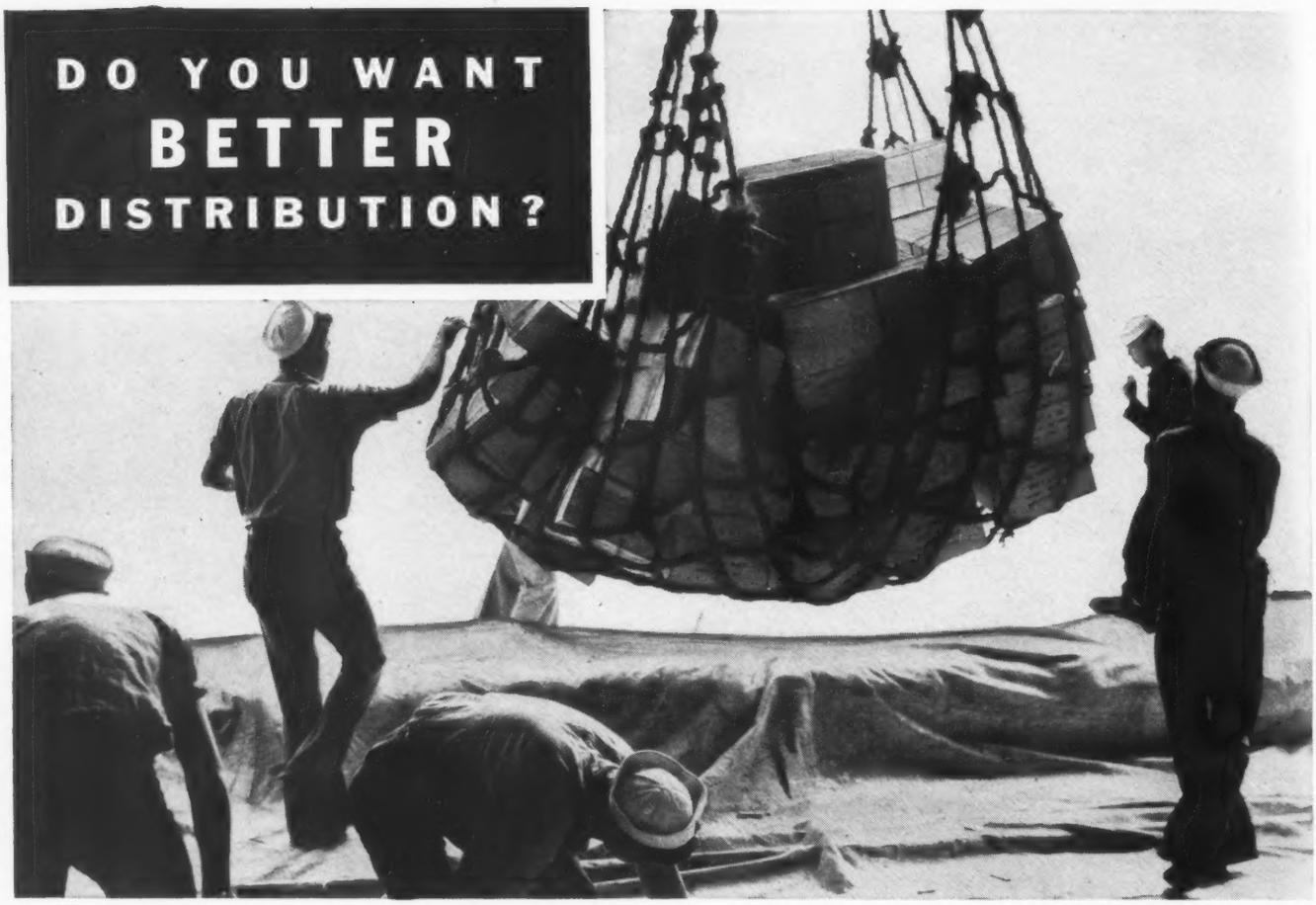
LABELRITES SOLVE MANPOWER SHORTAGE

NEW JERSEY MACHINE CORPORATION

1600 Willow Avenue . . . . . Hoboken, N. J.

Chicago Office: 325 W. Huron Street

DO YOU WANT BETTER DISTRIBUTION?



Official U.S. Navy Photograph

Let HUBBS HOUSES *Swing Into It* for You

CHARLES F HUBBS & COMPANY
Lafayette Street Warehouse
Beekman Street Warehouse
NEW YORK, N. Y.

HUBBS & CORNING COMPANY
BALTIMORE, MD

HUBBS & HOWE COMPANY
BUFFALO, NEW YORK

HUBBS & HASTINGS PAPER CO.
ROCHESTER NEW YORK

CHARLES F. HUBBS & COMPANY
BRIDGEPORT, CONN.

INTERSTATE CORDAGE & PAPER CO.
PITTSBURGH, PA

THOMAS J NAGLE PAPER CORP.
HOLLIS NEW YORK

HUBBS & HOWE COMPANY
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HOLLAND PAPER COMPANY
BUFFALO, NEW YORK

CHARLES F. HUBBS & COMPANY
TROY NEW YORK

and in Canada

VICTORIA PAPER & TWINE CO. LTD.
TORONTO

VICTORIA PAPER & TWINE CO., LTD.
MONTREAL

VICTORIA PAPER & TWINE CO., LTD.
HALIFAX

GARDEN CITY PAPER MILLS CO., LTD.
ST. CATHARINES, ONT.

CANADIAN VEGETABLE PARCHMENT CO., LTD.
MERRITTON, ONT.

The job that Hubbs representatives have been doing in promoting the widespread use of *protective packaging papers* is indicative of what our Paper Engineers can do in *creating* and *broadening markets.*

If you are looking for more aggressive representation in the rich area from Cleveland and Pittsburgh east, we can offer you a trained-to-the-minute, alert and versatile force of *service-minded salesmen.*

The HUBBS HOUSES

For

"DISTRIBUTORSHIP

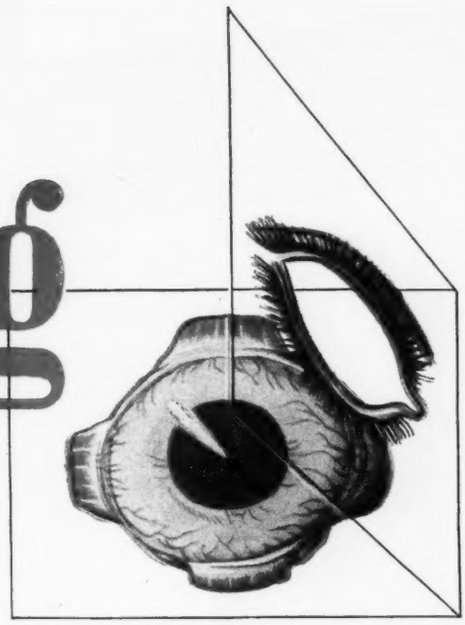
that Means

LEADERSHIP"

contact the Hubbs House nearest you.

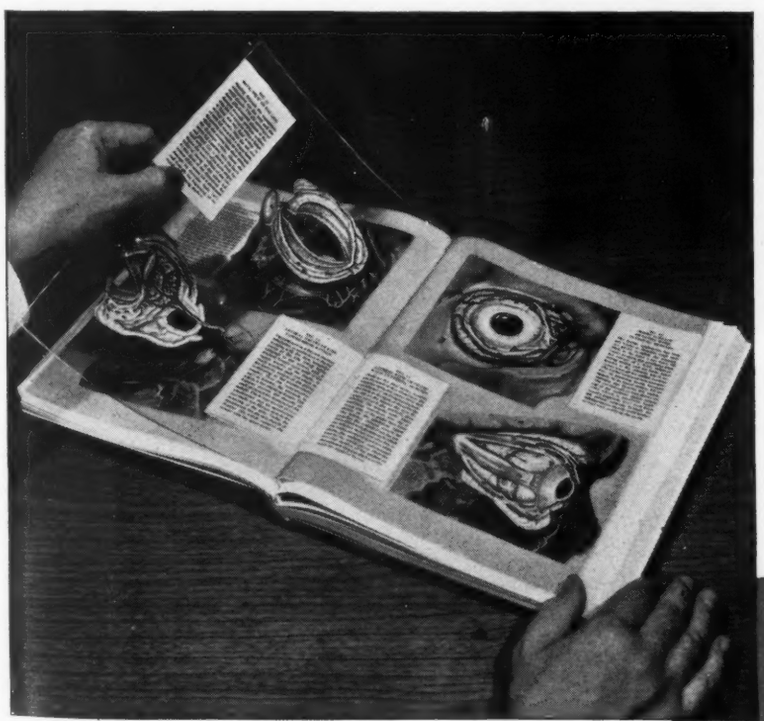
ESTABLISHED IN 1855

Seeing



Contributing to eye appeal . . . guarding against contamination . . . preserving freshness . . . affording vision, transparent Lumarith foil is doing an outstanding packaging job. As complete wraps, laminates, and in window boxes, it protects products and promotes sales.

The same qualities that make Lumarith good packaging are responsible for its use in a special medical volume recently published. In it, reproductions of the human eye in full color are printed on transparent Lumarith foil so that the reader can, in effect, duplicate an actual eye dissection by merely turning the pages. The selection of Lumarith for this application emphasizes anew, to the packaging industry, Lumarith's crystal clarity, toughness, fine printing surface, and its *no stretching—no warping* characteristics. (Lumarith has had a successful history in diagrammatic overlay pages, both in the fields of technical military instruction and sales work.)



"The Human Eye in Anatomical Transparencies" (H-508). Available through Bausch & Lomb distributors. Produced for Bausch & Lomb by Milprint, Inc.

What next in packaging? . . . is a question the producers of Lumarith plastics have factual answers for. Backed by the global supply experiences of this war, they are prepared to talk to you about packaging from new and significant angles. Your inquiries are invited. . . . Celanese Celluloid Corporation, *the first name in plastics*, a division of Celanese Corporation of America, 180 Madison Avenue, New York City 16.

LUMARITH*

a Celanese* plastic

*Reg. U. S. Pat. Off.


POSTWAR
PACKAGING
Plan Department

How to detour the "waiting" room

DON'T BE CAUGHT IN THE REPACKAGING RUSH THAT WILL COME WITH VICTORY. DO YOUR POSTWAR FOLDING CARTON PLANNING NOW.

When the war is over, you're not going to want your repackaging plans parked in the "waiting" room behind a lot of prior "planners."

They won't be—if you take a few minutes out of your busy day and get your basic planning started now. Gardner-Richardson's creative and technical staff is ready—right now—to work with you.

It's ready to begin developing the new or improved carton and counter displays that will give you a postwar jump on your competition. New cartons for new products. Modernized cartons for old products. Cartons with greater shelf appeal . . . better protective qualities . . . precision-engineered to speed up assembling, filling and sealing.

Why not detour the "waiting" room . . . get started right now? Give *us* the "go" signal . . . be *ready* when victory gives *you* the word, "Let's go." Write us today. You incur no obligation.

COUNT THE ADVANTAGES OF PLANNING NOW . . . WHILE THERE'S MORE TIME TO

1. **Make more sketches and adjustments**
2. **Make thorough tests and checks**
3. **Compare and select the right paperboard***
4. **Secure the best artwork and plates**
5. **Make the most accurate dies**

***HERE'S THE PAPERBOARD TO INVESTIGATE!**

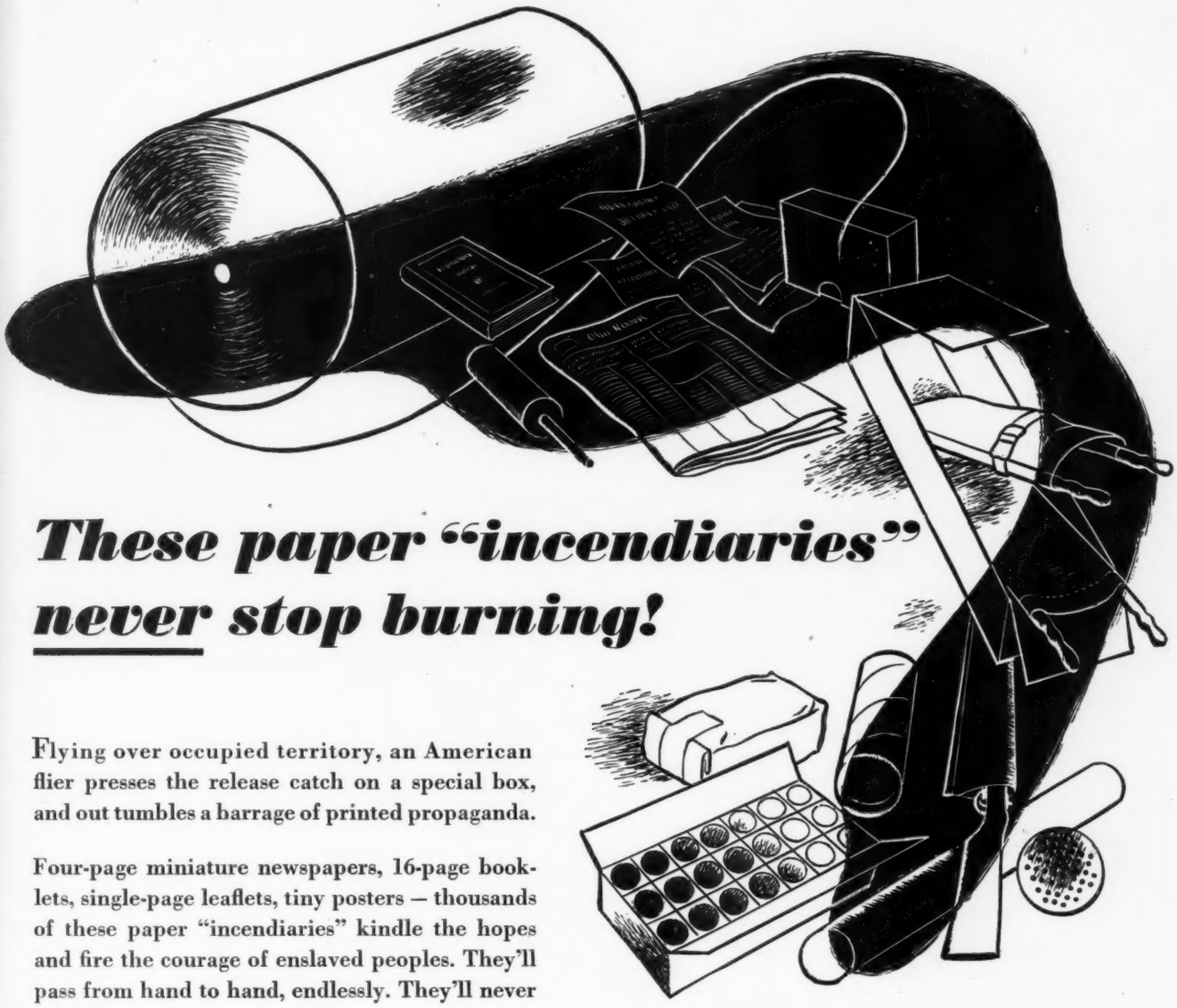
IF IT'S WHITENESS, brightness and brilliant high colors you want in your cartons—ask us to show you samples of revolutionary Coated Lithwhite. It's a genuine coated paperboard made by a new, patented, straight-through process which puts finer folding cartons within the reach of many buyers.

The GARDNER-RICHARDSON Co.

Manufacturers of Folding Cartons and Boxboard

MIDDLETOWN, OHIO

Sales Representatives in Principal Cities: PHILADELPHIA • CLEVELAND • CHICAGO • ST. LOUIS • NEW YORK • BOSTON • PITTSBURGH • DETROIT



These paper "incendiaries" never stop burning!

Flying over occupied territory, an American flier presses the release catch on a special box, and out tumbles a barrage of printed propaganda.

Four-page miniature newspapers, 16-page booklets, single-page leaflets, tiny posters — thousands of these paper "incendiaries" kindle the hopes and fire the courage of enslaved peoples. They'll pass from hand to hand, endlessly. They'll never stop burning!

The capture of Foggia airport on October 1 was reported to the French three days later in this way — and what's more, complete with colored maps!

After the destruction of Mohne Dam, a single-page leaflet was rushed out within 24 hours.

With radios silent and news channels closed, paper took over the job of supplying the European underground with encouraging facts and good news.

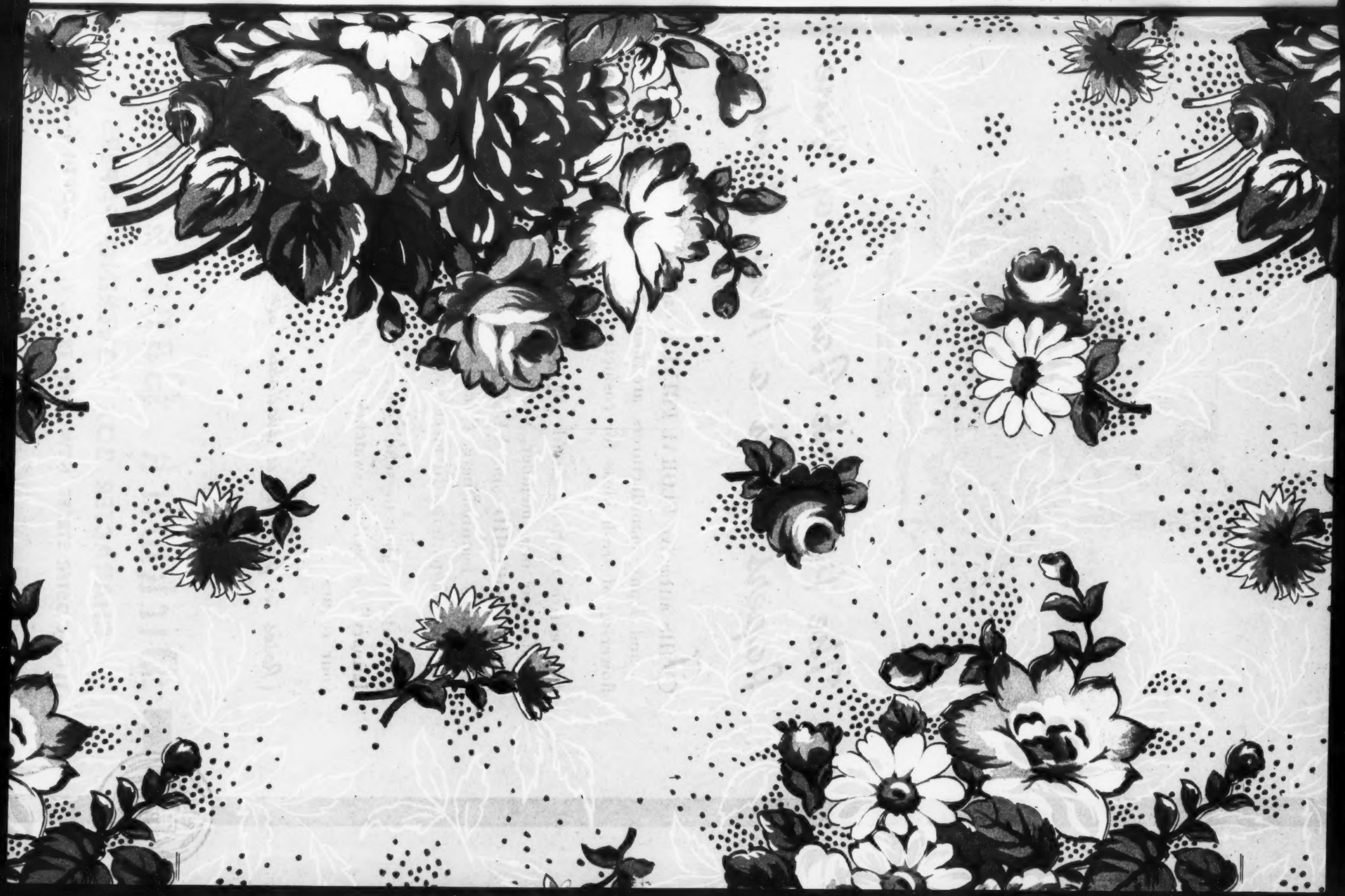
In fact, as time goes on, paper takes over more and more war jobs, replaces strategic materials, uncovers manufacturing short cuts.

Aviators' vests and gas mask containers of paper, gas-resistant litter covers, jettison tanks and hand grenade holders of paper — there seems to be no end to the jobs that wood pulp can do, and do well.

Making a thousand miles of paper a day, as we do, we are in close touch with all these developments in the paper and pulp field. From what we have observed, we are certain that when peace is ours, Oxford papers will play many parts in all phases of peacetime industry.

OXFORD PAPER COMPANY

EXECUTIVE OFFICES: 230 Park Ave., New York 17, N. Y.
WESTERN SALES OFFICE: 35 E. Wacker Dr., Chicago 1, Ill.
MILLS AT: Rumford, Maine; West Carrollton, Ohio



The Pickwick Family of Fine Papers Adds a New Member

THIS attractive FLORAL PRINT is called "Roses in January" — and many manufacturers are finding in this design a rich flowering of fresh ideas for cosmetics, gift packages, etc.

The entire *Pickwick* family of papers invites your inspection. Besides our new member, which is available in PINK, BLUE, GREEN, ORCHID and YELLOW backgrounds in addition to the BEIGE featured here, *Pickwick* offers a wide range of stock and custom patterns to meet wartime needs *now*.

We will be glad to send you working samples of "Roses in January" as well as swatches of other outstanding designs, at your request.

(Roses in January is available both in rolls and sheets)

Pickwick Papers, Inc.

CHARACTER BOX COVERING PAPERS

111 WOOSTER STREET, NEW YORK 12, N. Y. WORTH 4-7338

freshness and flavor

PROTECTED BY CEL-O-SEAL BANDS

● The freshness and flavor of Maxwell House and other popular brands of quality coffee are well guarded by CEL-O-SEAL cellulose bands.

These bands provide a durable, tight-fitting seal around the metal-saving fibreboard caps now supplied on these vacuum-sealed glass containers.

CEL-O-SEAL bands are easily applied. They hold closures securely in place. This helps retain flavor . . . guards against dust, dirt and impurities. The bands discourage tampering . . . forestall sampling and are an added protection against loss of quality.

Consider CEL-O-SEAL . . . the modern way of protecting quality products. Write for descriptive literature.

E. I. du Pont de Nemours & Co. (Inc.), "Cel-O-Seal" Section, Empire State Building, New York City 1.

Also sold by: Armstrong Cork Co., Glass & Closure Div., Lancaster, Pa. —I. F. Schnier Co., 683 Bryant Street, San Francisco, California.

DU PONT CEL-O-SEAL BANDS

TRADE MARK

DU PONT
REG. U. S. PAT. OFF

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

WE RESOLVE . . .

To Find New Ways To Serve You Better

We, of the Sefton Fibre Can Company begin the New Year with new resolutions that have been carefully planned to benefit you, our customers. Our Research experts and designers are working overtime seeking New ways to serve you better in the years to come! Unique New Materials . . . new designs . . . and functional new shapes are vital parts of our plans for the package of tomorrow! So superlative it will be, that it's destined to be a dramatic "show-case" for your product!

SEFTON

FIBRE CAN COMPANY

ST. LOUIS • • • • • NEW ORLEANS

The Package of Tomorrow!

DISTRICT OFFICES: Los Angeles San Francisco Denver Tampa Chicago Des Moines New Orleans Boston Detroit Kansas City St. Paul Omaha New York Cincinnatti Cleveland Oklahoma City Pittsburgh Memphis Nashville Dallas Houston Salt Lake City Seattle

If Friendships Bend . . .

Our untiring efforts are directed
Towards the end:
They do not break. For
In trying to be fair to all
When not enough to go around,
Some go without.
May friendly understanding keynote
This Holiday Season . . .
To the end that
"They'll Be Home For Xmas",
To gaily celebrate the next.

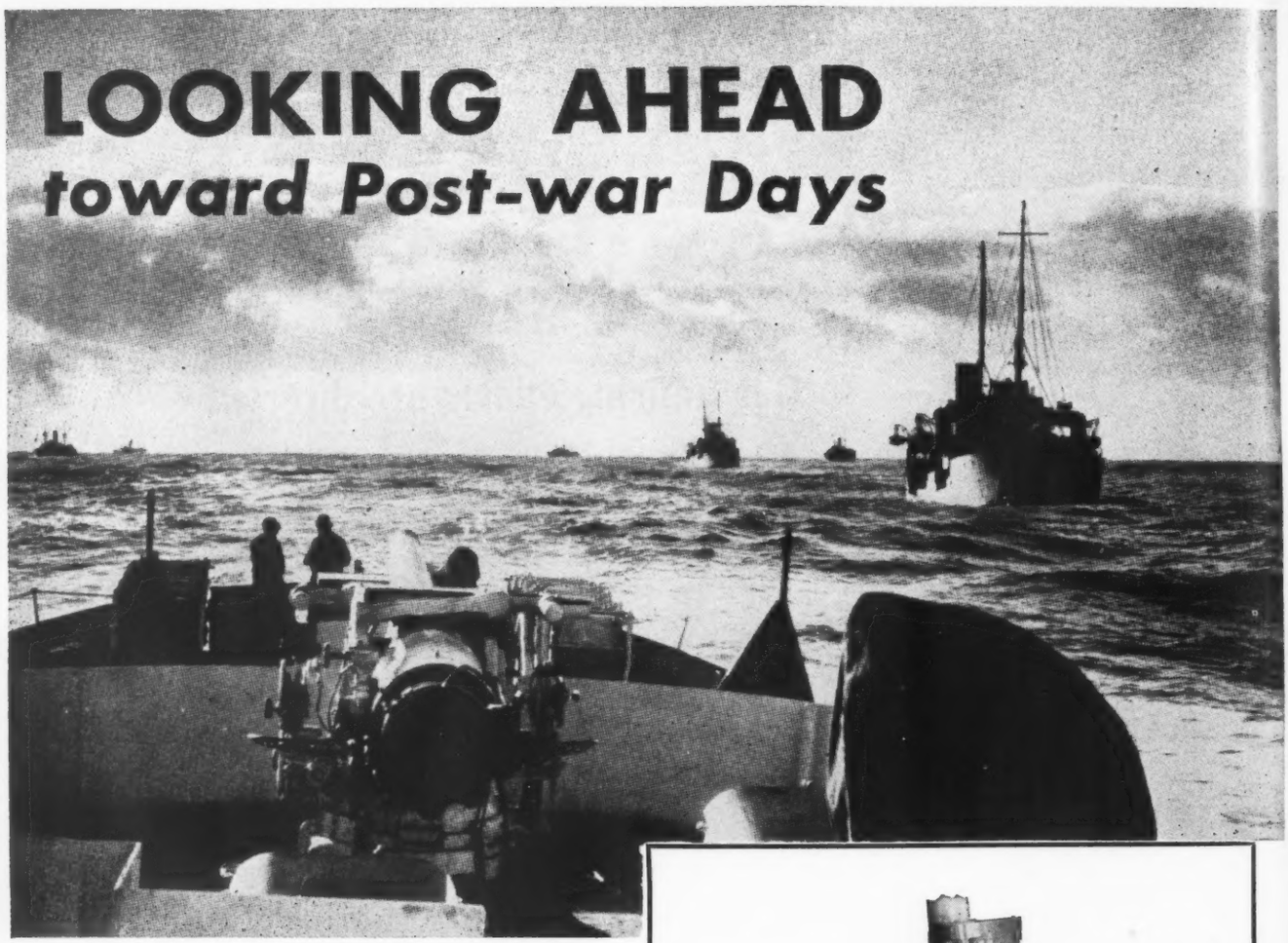
IN GRATEFUL APPRECIATION
and WITH BEST WISHES . . . .

A. B. MASSA PAPER
CORPORATION

BOX BOARDS Alyswhite BLANKS

EXECUTIVE OFFICES,
358 FIFTH AVE., NEW YORK

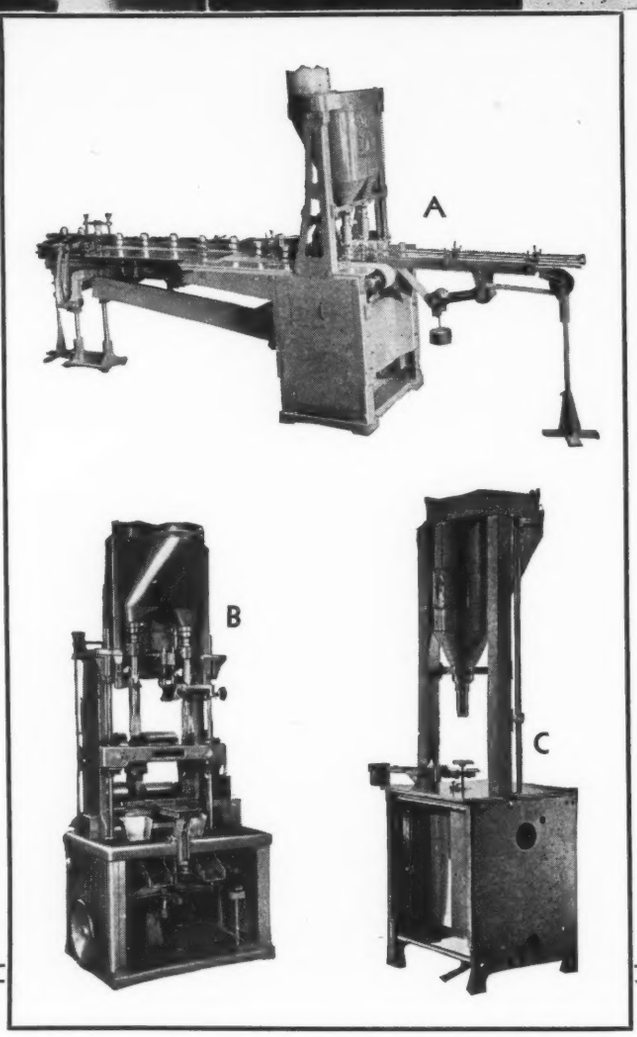
LOOKING AHEAD
toward Post-war Days



Today, our facilities, like those of so many others, are filled to capacity turning out material that is helping bring victory and peace closer. For that reason we cannot always give the service which has built the "S & S" reputation over the past 40 years.

We are doing our best, though, to help our many friends and customers all we can. But, if you have to wait for repair parts or even new machines, we hope you will understand.

In the meanwhile, our engineers and designers are working steadily so the S & S machines you will want after the war will serve you better.



A. S & S Two Station Filling Machine.

B. S & S Transwrap Machine. Forms — Fills — Seals. Uses Cellophane or other heat sealing films.

C. S & S Universal Filler. For powders, pastes or granular material.

STOKES & SMITH Co

Frankford, Philadelphia 24, U. S. A.

FILLING • PACKAGING • WRAPPING MACHINES

Speeds to suit your needs—15-30-60-120 per minute

NO TIME FOR "BROKEN NOSES" NOW!

PHOTO LIBBY-OWENS-FORD

That's a big bomber nose in the corrugated box. It's a mighty important piece of war goods, and its safe delivery stresses the vital role, war-time packaging is playing. Yes, on the unbroken chain of production, packaging and safe arrival depends the welfare of our armed forces.

Techniques developed in the engineering of war-time packages, that carry every type of war supplies to world-wide destinations, are carefully studied by H & D Package Engineers so that every possible packaging improvement will be in readiness for your post-war requirements.

Tomorrow's shipments will profit by today's packaging developments. Now is the time to plan post-war packaging. Rugged, dependable H & D corrugated boxes, designed by the authority on packaging, are the answer to shipshape, undamaged deliveries. Let H & D Package Engineers help you with your plans for post-war packages that protect and promote the product.

IF YOU CAN'T BUY TWO WAR BONDS PER MONTH—BUY ONE!

TELLS HOW TO SPECIFY CORRUGATED BOXES

Information on shipment size, weight, value, packaging, sealing, handling, and a question chart to easily determine the proper corrugated box to use, are clearly outlined in the H & D "Little Packaging Library" booklet, "How To Specify Corrugated Boxes."

This booklet as well as the 7 others that comprise the H & D "Little Packaging Library" can be had by writing The Hinde & Dauch Paper Company, Executive Offices, 4414 Decatur Street, Sandusky, Ohio.

FACTORIES in Baltimore • Boston • Buffalo Chicago • Cleveland • Detroit • Gloucester, N. J. Hoboken • Kansas City • Lenoir, N. C. • Montreal Richmond • St. Louis • Sandusky, Ohio • Toronto

For postwar packaging..better see **HINDE & DAUCH**

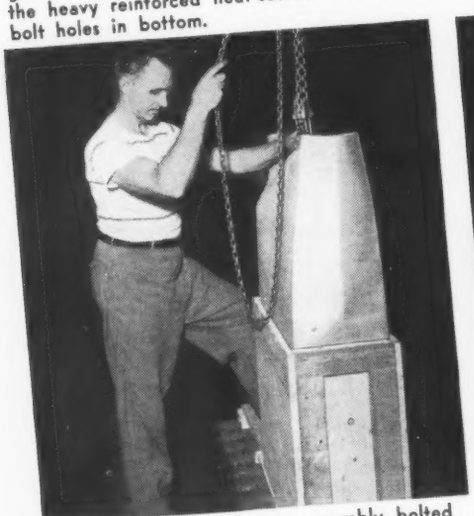
AUTHORITY ON PACKAGING . . . CORRUGATED SHIPPING BOXES

Here's how we* pack a 157 pound oil gear for Ack-Ack

U. S. E. moisture-vapor-proof, waterproof, greaseproof bag, as received at factory. Note the heavy reinforced heat-sealed seams, and bolt holes in bottom.

Bag is placed upon oak base. The bolts passing through gaskets and the holes in the bottom of the bag.

Oil gear assembly is lowered into bag and bolted securely to the base.



U. S. E. bag with oil gear assembly bolted securely to oak base, is lowered (with case lining) into wooden case.

Silica Gel is inserted. Then top of U. S. E. bag is sealed and folded down to form a tight inter-locking seal that is waterproof and moisture-vapor-proof. . . . Complete Oil Gear assemblies for anti-aircraft guns are received at the front, ready for use, completely enclosed and protected from corrosion by U. S. E. bags of specially treated, reinforced paper.

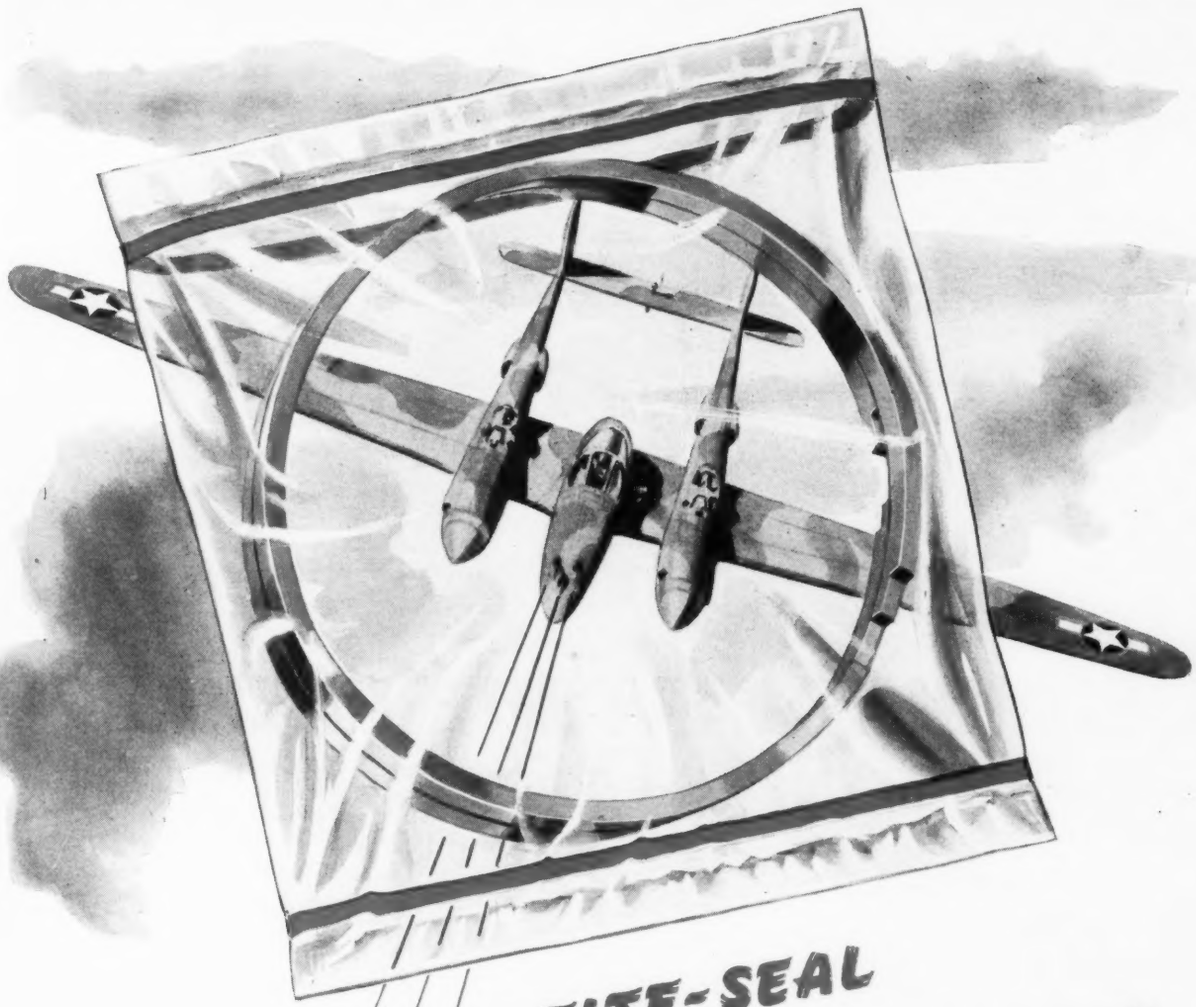
*Photos taken at plant of Gilbert and Barker Co., West Springfield, Mass.

You'll find U. S. E. containers guarding sulfa-drugs, sutures, salt tablets, toilet paper, field rations . . . Serving as packages for small parts, shipping papers, humidity indicators . . . providing boots for rifles, case liners for overseas shipments and moisture-vapor-water-grease-proof containers for many Ordnance materials.

UNITED STATES ENVELOPE COMPANY, Springfield 2, Massachusetts

U·S·E *protective packaging*

Products of United States Envelope Company include: WAR PRODUCT PACKAGING • TRANSPARENT CONTAINERS • ENVELOPES WRITING PAPER • LINWEAVE PAPERS • NOTE BOOKS • PAPER CUPS • TOILET TISSUE • PAPER TOWELS



IT'S "IN THE TITE-SEAL BAG" FOR OUR BOYS

Piston rings in TITE-SEAL Waterproof Cellophane Bags reach fighting fronts in prime condition. So do thousands of other military parts—bolts, bearings, gauges, etc.—for which TITE-SEAL Bags are *approved* Grade A wrapping material in Packaging Methods 1 and 1A.

Availability is only one reason for TITE-SEAL popularity; visibility is another. One look identifies the contents, sealed against rust and corrosion.

The unmatched advantages of TITE-SEAL Bags proved in war, will protect in peace, parts and articles for shipment and stock.

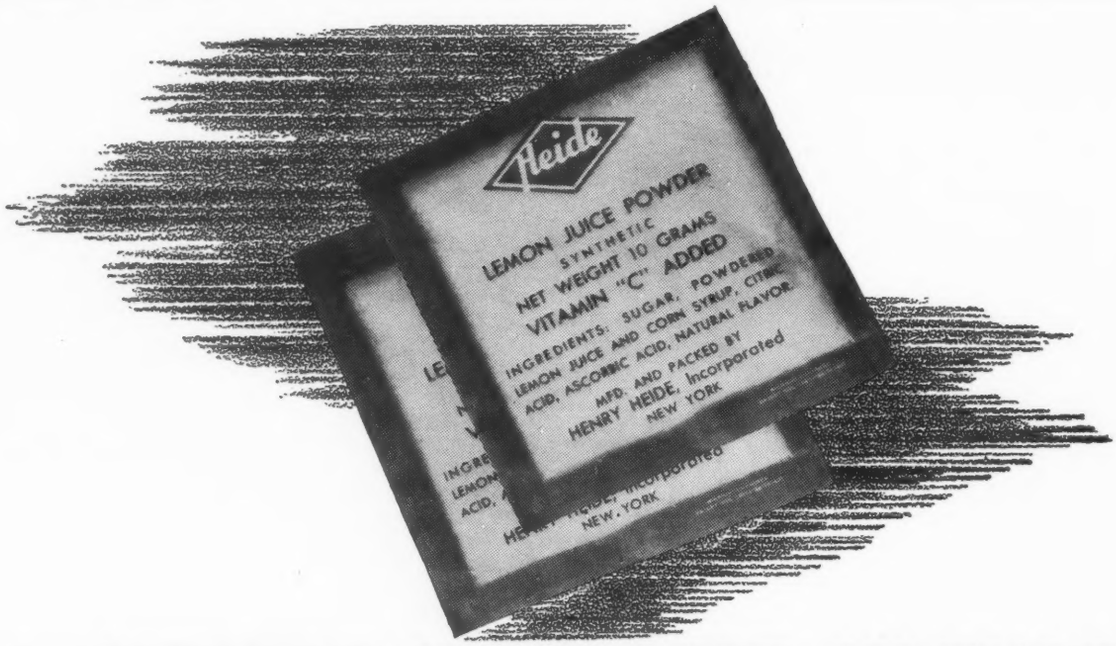
LOXTITE PARTITIONS • "TITE-SEAL" CELLOPHANE BAGS AND LINERS • MULTI-COLOR PRINTED CELLOPHANE AND GLASSINE IN SHEETS OR ROLLS

Patents Applied For

TRACO "Packaging Perfection"

TRAVER CORPORATION

358 West Ontario St. • CHICAGO, ILLINOIS • 404 N. Sacramento Blvd.



A SIMPLE WARTIME PACKAGE WITH A BIG FUTURE

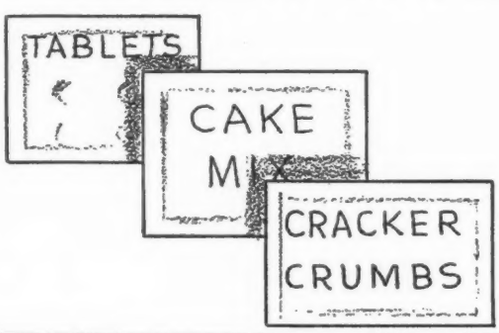
Many new wartime packages have a broad post-war value—when properly visualized, analyzed and applied to other products.

This apparently simple Heide package is made on a Stokes & Smith Transwrap machine, producing a fin-type seal. It uses a triple-laminated, heat-sealing glassine and provides a remarkably high degree of moisture-vaporproofness.

A far cry from anything you use to-day? Perhaps! But the machine and the paper that made it possible are already being carefully examined by firms in the chemical, drug, candy, baking and food fields.

This is just one of our recently developed protective papers. If you are seeking new horizons for to-morrow's packaging, we believe we can help you.

RIEGEL PAPER CORPORATION
342 MADISON AVENUE, NEW YORK 17, N. Y.



Riegel's heat-seal, triple-laminated glassine also has many possible uses as a carton liner—loose or laminated to board. Send for samples and check its remarkably high moisture resistance.

The parachute can that sprays bomb splinters

If you ever see this innocent-looking can floating down at you, find a foxhole fast.

It's one of the deadliest bombs ever invented. One of the most ingenious, too!

Here's how it works: Inside the can is a folded parachute. When the can is dropped the chute opens, automatically pulling a wire that sets a fuze. The instant the can hits, TNT explodes—spraying jagged fragments.

Why the parachute? It enables a plane to fly very low, dump its load and get away before the explosion. It also lets the can down gently so it will explode *above* the ground and do more damage.

Millions of strong, sturdy cans are going to war to help American boys. They're carrying food, fuel, medicine and ammunition to our fighting men—destruction to our enemies. And they're delivering their vital supplies—*safe!*

The cans at war will some day be back to join the cans still serving you here at home. They'll be better cans, thanks to the experience our laboratories and plants are gaining as wartime "Packaging Headquarters for America."

WANT WAR WORK HELP?

Rushed as we are, we can still take on more war work. A part of our vast metal-working facilities for forming, stamping, machining and assembly is still available. Write or phone our War Products Council, 100 E. 42nd St., N. Y. C.

CONTINENTAL CAN COMPANY

SAVE TIN AND HELP CAN THE AXIS

OTHER PACKOMATIC MACHINES

Shipping Case Sealing Machines

Consecutive Numbering Machines

Carton Sealing Machines

Auger Packers

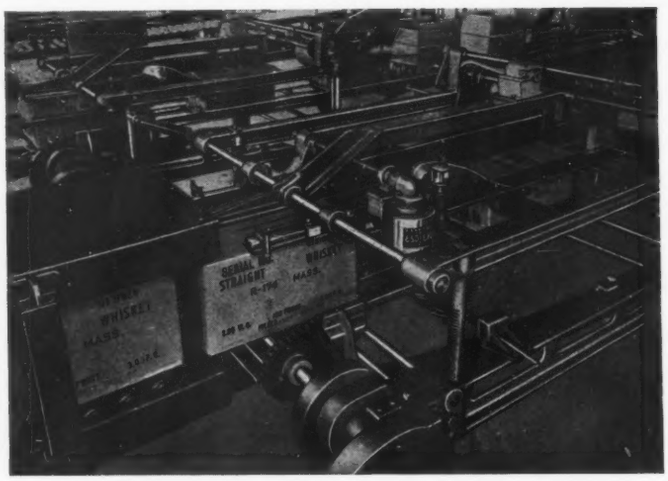
Paper Can Tube Gluers

Dating Devices

Paper Can Tube Cutters

Paper Can Shrinking Machines

Paper Can Labeling Machines



Serial Numbering Device on Packomatic Case Sealer, in the Plant of Ben Burk, Inc., Boston, Mass.

PACKOMATIC SERIAL NUMBERING DEVICE

Our Consecutive Serial Numberers work automatically, imprinting the shipping case while it is in motion through the gluer. Prints 3/4" high characters, approximately 3/4" from top of case and prints up to 999,999 consecutively. A letter can be used preceding the number to identify the production line. Ink supply is automatic. Complete detail upon request.

PACKOMATIC CASE SEALER WITH EXTENDED FEED AND 8′ COMPRESSION UNIT

PACKOMATIC CASE SEALING MACHINES

Extended feed case sealers are often furnished where dividers have to be inserted into shipping case, and case sealed on one end before product is placed in the container, or where several different items make up contents of case. It is adjustable for a wide range of different size cases. Packomatic Model "D" Case Sealer will meet your requirements for sealing both top and bottom flaps simultaneously, or for sealing either top or bottom only. Furnished for any desired speeds. No operator required.

Essential industries who can furnish priority can purchase Packomatic equipment now. We are now accepting orders for Post War deliveries.

PACKOMATIC

PACKAGING MACHINERY

J. L. FERGUSON COMPANY, JOLIET, ILLINOIS

REPRESENTED IN ALL PRINCIPAL CITIES

Shipping Case Printing Machines

Carton Making Machines

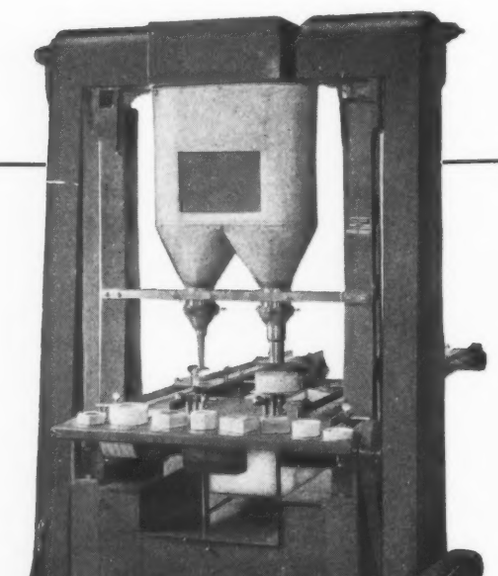
Automatic Volumetric Fillers

Paper Can Set-up Conveyors

Paper Can Label Dryers

Versatile FILLING MACHINE HANDLES VARIETY OF PACKAGE TYPES & SIZES

To manufacturers who have a wide range of different size containers and products, this is the ideal filling machine. It is a twin-station semi-automatic, which can be equipped to pack, gross weigh or volume fill.



THE MODEL MH BOND FILLING MACHINE

The Bond is sturdy and dependable, giving fine service even on the most abrasive materials. It can be used for any type of container—bag, jar or can. It is accurate and smooth in operation, and is widely known for its record of fine service over many years.

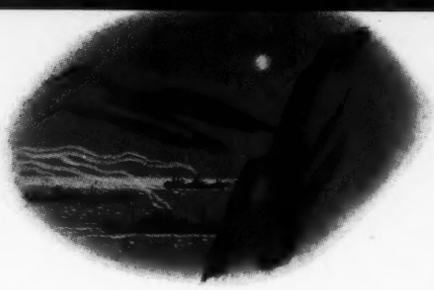
If your production is not large enough for one of our fully automatic machines, or if you have a great number of different sizes, send us samples and particulars on your production requirements and we will give you full information on a model recommended for your needs.

UNITED STATES AUTOMATIC BOX MACHINERY CO., INC.

owning and operating

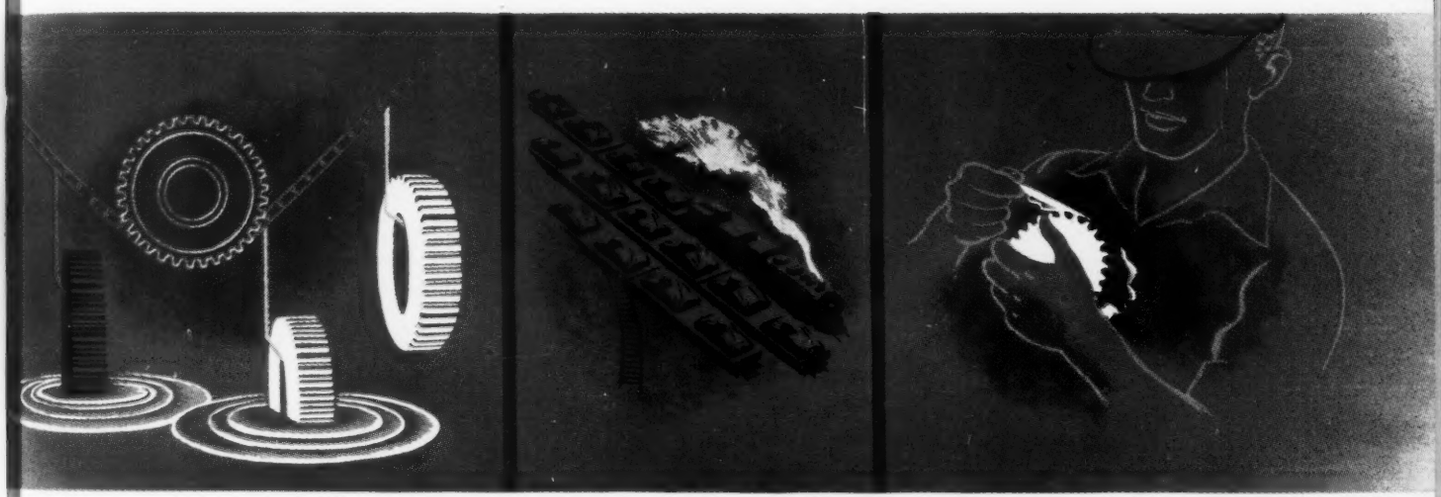
National Packaging Machinery Co. — Cartoning Machinery Corp.

18 Arboretum Road, (Roslindale) Boston, Mass. Branch Offices: New York, Cleveland, Chicago



Hot Melt Dip *for metal parts speeds Packaging Operations*

STRIPCOAT—"Skin-tight" protection from corrosion—applied by dipping—removed by stripping—saves 80% in man-hours required for packaging.



Stripcoat is a new, time-saving material for protecting metal parts. This Dow product, developed in cooperation with the Ordnance Department, is an important answer to the need for better, faster packaging.

DIP IT—Parts such as gears, camshafts and axle shafts are properly cleaned, then simply dipped by mechanical devices—picking up a layer of Stripcoat. This "sets" immediately and forms a tough, waterproof, corrosion-resistant coating.

SHIP IT—With Stripcoat, parts are quickly readied for shipment—capable of withstanding temperatures ranging from —30° to 160° F. and standing up in humidities as high as 100% at 100° F.

STRIP IT—On arrival at final destination, the coating is easily removed by slitting with a knife—then quickly peeled with the fingers.

Through Stripcoat, both packaging costs and manpower needs are substantially reduced. Technical data on the use of Stripcoat is available on request.

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Chicago • St. Louis
Houston • San Francisco • Los Angeles • Seattle

OTHER DOW PRODUCTS FOR BETTER PACKAGING

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Stripcoat

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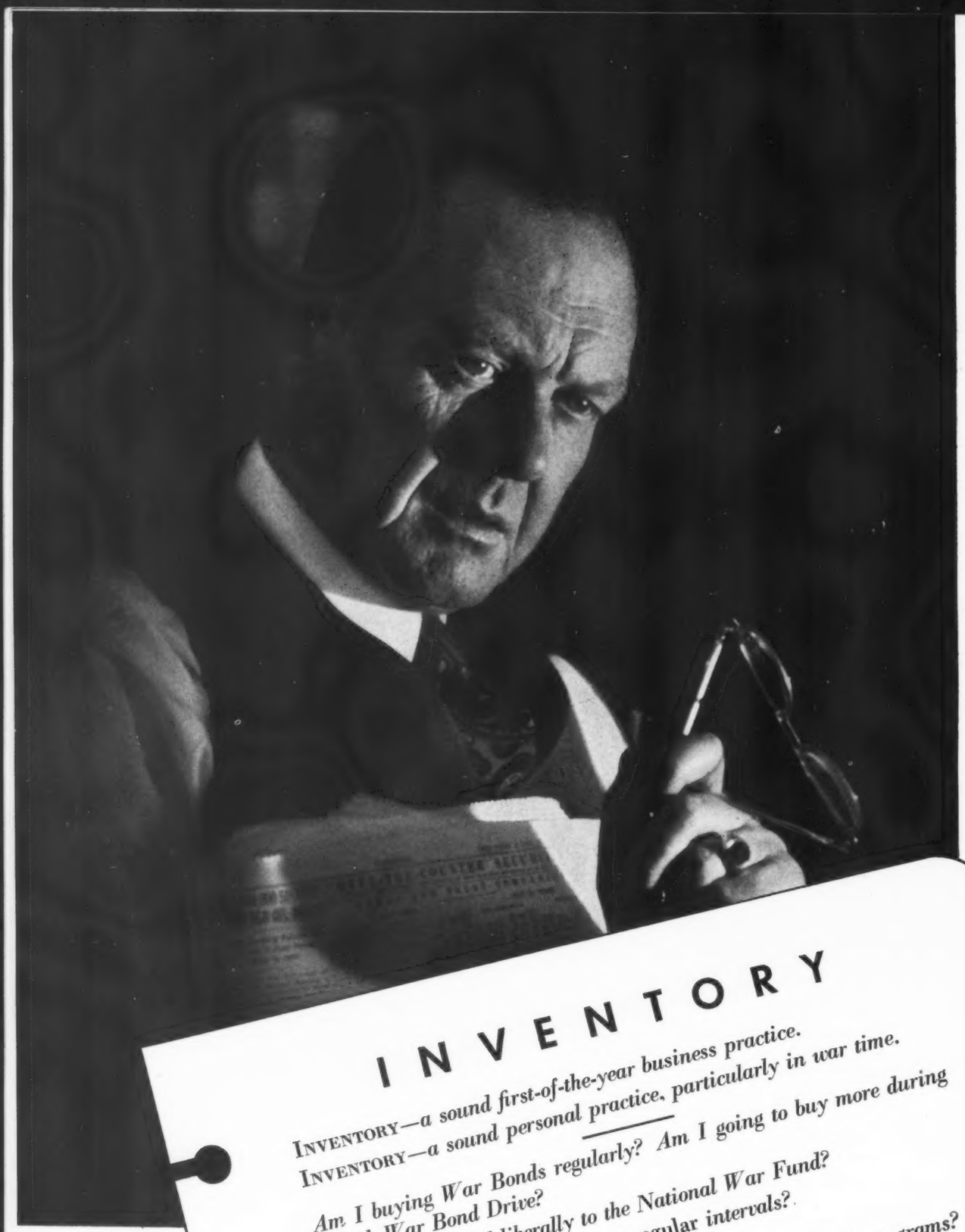

INVENTORY

INVENTORY—*a sound first-of-the-year business practice.*
INVENTORY—*a sound personal practice, particularly in war time.*

Am I buying War Bonds regularly? Am I going to buy more during the 4th War Bond Drive?
Have I contributed liberally to the National War Fund?
Have I given life-saving blood at regular intervals?
Am I conserving metals, paper and fats?
Am I cooperating in every way with the Government food programs?
Am I writing to those in the service as often as I should and am I writing the kind of letters that help?

Check your answers with your heart. If they balance, you too are fighting a winning war.

HAZEL-ATLAS GLASS C
Wheeling, W. Va.

WE'RE LOOKING *Forward* TO...

NEW and BETTER WORLDS

● The new WORLD Automatic and Semi-Automatic Labelers are going to be better than any that the world's oldest and largest specialists in Labeler engineering and construction have ever built.

That's a result of our intensive war production experience and the knowledge and experience we've picked up from close teamwork with users of WORLD Labelers who have met extraordinary wartime conditions and demands so successfully.

Now is the very best time to get yourself fully informed as to the best labelers in the WORLD for your post-war future.

Don't fail to get in touch with WORLD labeler headquarters.

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ECONOMIC MACHINERY COMPANY

Builders of World Automatic and Semi-Automatic Labelers for Every Purpose

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ABOUT 1 PACKAGE IN 10 ACTUALLY HELPS A PRODUCT Sell!

At right—"one at a time" dispensing package—uniquely merchandisable

How to get a PACKAGE THAT SELLS!

The art of packaging is NEW.

For years packages only *contained* products. Ritchie made them—78 years ago. Improvements came first in utility, protection of product, durability, convenience. Then quantity production for lower costs.

Last—and all too slowly—has come the realization (making fortunes for some) that a package can be *a silent, effective salesman* at the point of sale.

On the counter, in the stores, where consumers choose, the package that compels attention and "looks" superior-quality wins favor for a product *over others of its class.*

Ritchie leads in making that kind of package . . . integrating all the complex, essential package-qualities for the one major purpose—SELLING.

A Package by Ritchie can be depended on to have the right material and structure for its job, to be practical, convenient to use, easy to handle, to stock and display, but

—including and dominating all these—

a Package by Ritchie is an active selling force . . . a product-identifying, eye-appealing package that people see, ask about, reach for . . . a package that SELLS.

HAVE YOU A PACKAGE PROBLEM? Ritchie's expanded, war-developed facilities for volume production assure a *better* package at less cost. You may call on Ritchie for help on *any* package problem—to lower the production cost of your present package, to improve its appearance or to design a new better-selling package. Write us today.

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Set-Up Paper Boxes Fibre Cans Transparent Packages

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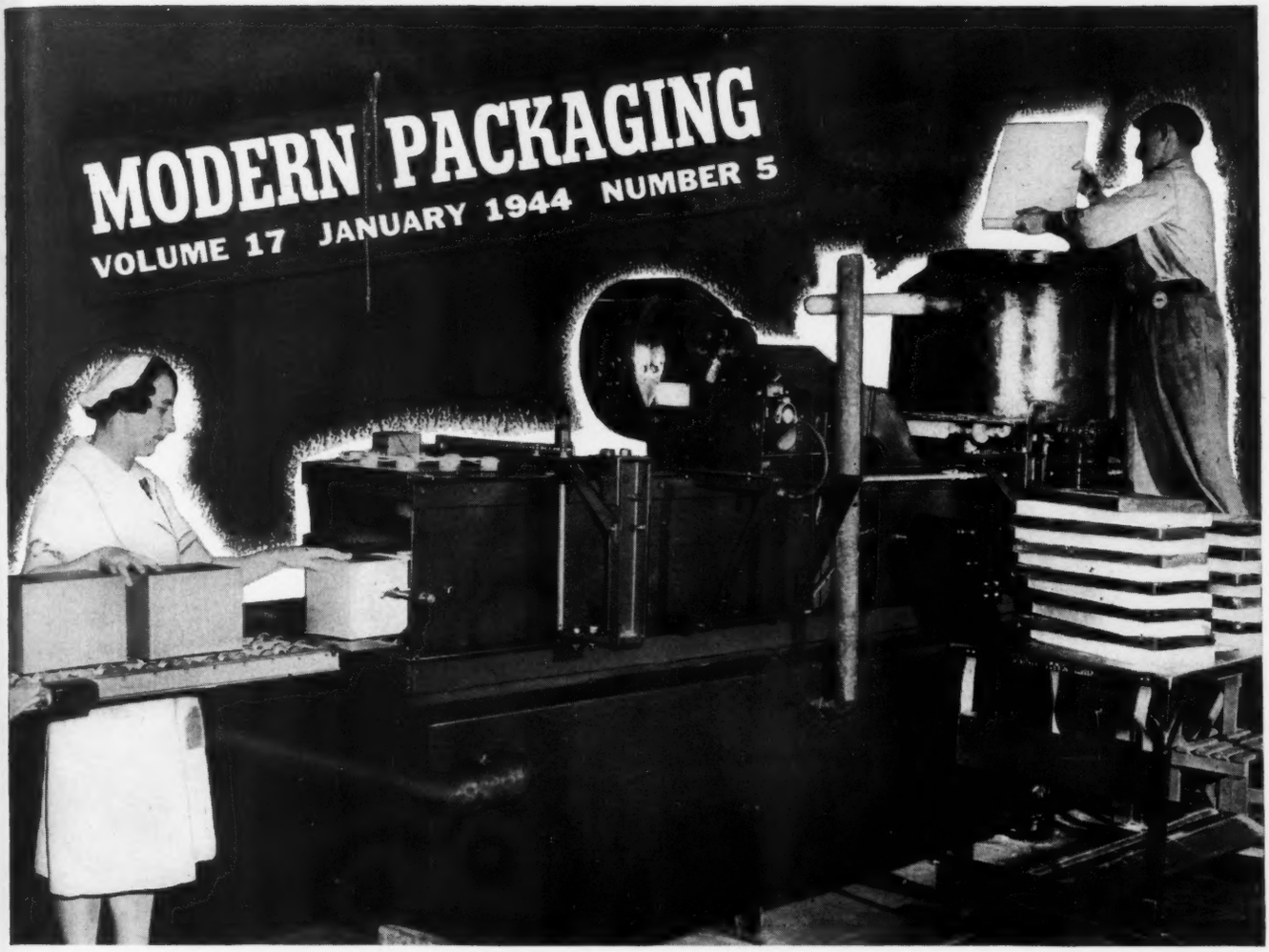


1—Double-dip waxing equipment at American Chicle Co. for 10-in-1 rations. Packages receive two wax baths—first dip to impregnate board to controlled temperature; second, to give smooth continuous coating.

PETROLEUM WAXES

Without an oil well, today's protective paper packaging would be almost impossible. Petroleum waxes are the backbone of waterproof and moistureproof papers. With few exceptions, they are among the best non-metallic materials known for resistance to transmission of water vapor.

They coat paper milk containers, butter cartons, bread wrappers. They protect cheeses, frozen foods, dehydrated foods, meats, crackers, tea, coffee, chewing gum, cigarettes and candy. They preserve a soldier's rations and keep his ammunition dry. They protect guns and machine parts from corrosion.

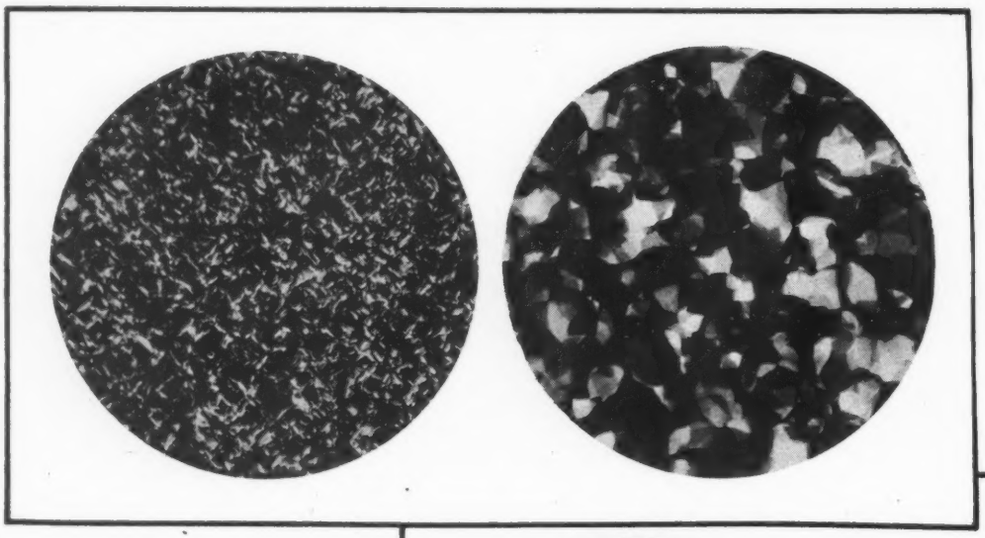
Attention is focussed on waxes today because of their role in paper packaging that is taking the place of steel, tin foil, and other materials now permitted only for the most essential uses.

The present use of waxes in packaging is the result of years of development that goes back as far as the first waxed papers used by National Biscuit Co. at the turn of the century for the inner wrap of their Uneeda Biscuit package which took crackers out of the cracker barrel and put them into individual consumer packs. It goes back to the early wax-dipped inner wrap for Cracker Jack. These same wax packages with certain improvements are still used today.

To understand the use of wax treatment of paper, one must first know something about paper. Paper consists of countless cellulose fibres felted together and bonded by a sizing to make a continuous contact of cellulose to cellulose throughout the sheet, with minute openings between the fibres. Water (liquid) will pass through these interstices, rather than along the fibres. Moisture (water vapor) on the other hand is transmitted by the cellulose fibres as well as through the interstices, since the cellulose fibres are hygroscopic and can actually remove moisture from the surrounding air.

Paper may be made water tight by filling up the minute openings between the fibres with wax. This may be done in the paper industry by what is known as *dry-waxing*—driving the wax into the paper, with little, if any wax remaining as a surface film.

This method, however, though it fills the pin holes with wax, does not completely cover the cellulose fibres and many



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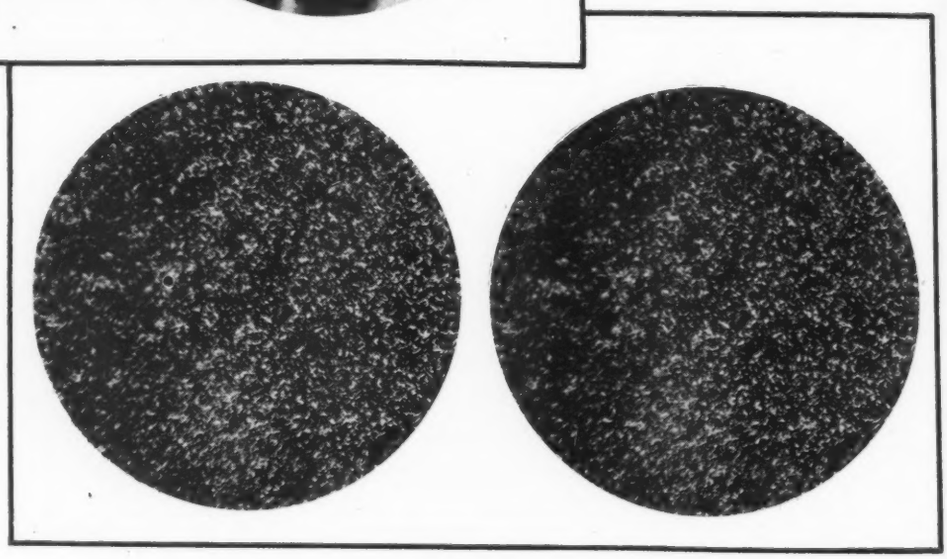
2—*Microphotos of paraffin wax. Left: before aging. Right: after aging. Note changes in crystallization. These changes make paraffin waxes unsuitable to use for certain purposes.*



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3—*Microcrystalline waxes, on the other hand, are relatively stable and show practically no change in crystallization before and after they are similarly aged for a comparable period of time.*

protrude above the surface like "fuzz" or wicks which absorb the moisture from the more humid side of the sheet and carry it along the chain of cellulose fibres to the dry side. Dry-waxing, therefore, is not capable of producing a completely moistureproof sheet. This can be done, however, by *wet-waxing*—or applying the wax as a surface film, with only enough wax impregnated into the paper to provide a bond to it (Fig. 4).

A third method of imparting both waterproofness and moistureproofness to paper may be obtained by laminating two sheets of paper together with a layer of wax. This provides a continuous barrier protected from careless handling or abrasion by a durable ply on each side of the barrier.

The wax film may be part of the carton structure as an outside or inside coating, or as a laminant. It may be used in a liner or as a wrapper. No fixed rules can be established for the type of package to be used for a specific application without careful study of the factors involved and a determination of the combinations best suited to each case. However, one objective must be maintained—a sturdy continuous wax film.

Petroleum waxes used in the packaging industry are of two types—paraffin waxes and microcrystalline or amorphous waxes as they were called before their minute crystalline structure was known. While they are both composed of paraffinic hydrocarbons, they are quite different in their physical characteristics.

While both of these waxes are products of petroleum refining, their difference is due to the fact that they are separated from entirely different fractions of crude petroleum.

Paraffin wax is removed from distillates or overhead stocks by sweating or solvent separation. The microcrystalline grades are separated from residual stocks by first separating petrolatum from these stocks by centrifuge or solvent separation and then further treating the petrolatum by selective solvent separation or by recentrifuging (Fig. 6).

As microcrystalline waxes thus removed are dark in color, it is necessary in some cases to decolorize them in varying degrees to meet the requirements of specific uses. Very little difference is found in different shades of the same microcrystalline wax.

Paraffin waxes have lower boiling points than the microcrystalline waxes and are therefore lower in molecular weight which probably accounts for the melting point range of paraffin wax being lower than the melting point range of microcrystalline waxes. In general paraffin wax melts from 100 deg. F. to 150 deg. F. and has a refractive index of approximately 1.43 at 75 deg. C., while microcrystalline waxes vary in melting point from 140 deg. F. to 200 deg. F. and have a refractive index of approximately 1.45 at 75 deg. C. There are, however, some waxes of both types which do not fall within these limits due to novel methods of manufacture or to idiosyncracies of the crude oil from which they are derived.

The different melting point grades of both petroleum waxes are made by adjustments in the manufacturing process and are also due to the nature of the crude being run.

The important properties of petroleum waxes are their high resistance to water-vapor transmission, their practical freedom from odor and taste, their change from solid to liquid state over a very small range of temperature, their relatively low viscosity in a liquid state immediately above their melting point and their chemical inertness. In addition to these properties common to both waxes, the microcrystalline grades have excellent adhesive qualities, are quite flexible in thin films over a wide range of temperature and are characterized by high melting points valuable for certain purposes.

On the flat sheet there is very little difference between the water-vapor transmission rates of paraffin and microcrystalline waxes, but the latter is said to be superior on a creased sheet or one that must stand crumpling or rough handling during its protection period. This property of microcrystalline wax is obviously due to its flexibility in thin films whereas the paraffin is quite brittle.

Commercial wax papers are being produced which have water-vapor transmission rates as low as 0.2 gram per 100 sq. in. per 24 hours at a temperature of 100 deg. F. and a relative humidity of 95 per cent on the wet side. Through further research and improved methods of application these rates are being continually reduced.

Adhesive properties or tackiness of microcrystalline waxes make them valuable as laminating agents when the adhesive layer also serves as a water-vapor barrier. Many of the ordnance wrapping materials now used employ this property of microcrystalline waxes.

Paraffin-type waxes and microcrystalline-types may be combined with one another in all proportions, so that compromises in the form of blends are possible. This is fortunate today, when Army Ordnance and the Quartermaster Corps are demanding the lion's share of microcrystalline for the laminations and wax dips used for packing ammunition, metal parts and rations. The Quartermaster Corps has been using a combination of paraffin and microcrystalline for the wax dipping of ration packages, but is at present making tests of new wax compounds with less microcrystalline and including paraffins mixed with synthetic thermoplastic compounds. Future progress will undoubtedly be made in this

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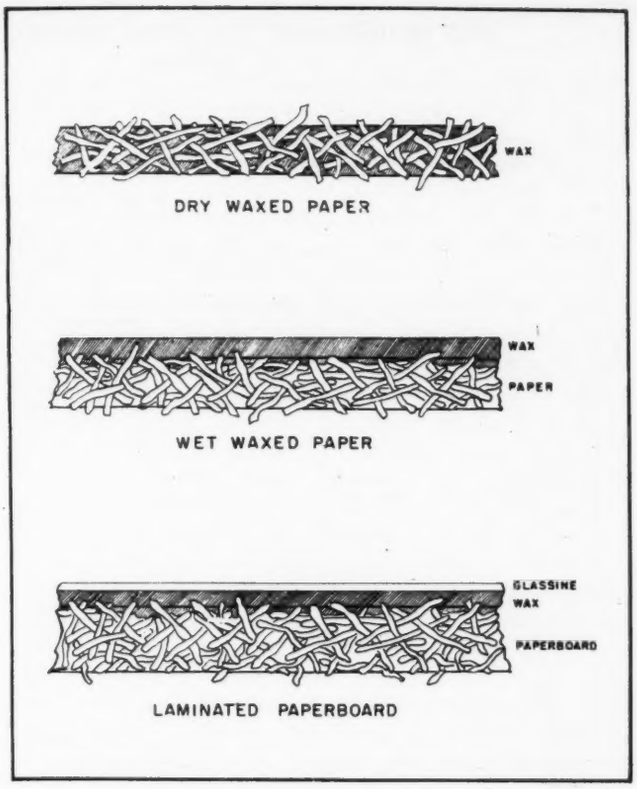

4—Paper may be made watertight by filling up openings between fibres with wax. This is known as dry waxing. This method does not completely cover the fibres and many protrude like wicks, which absorb moisture. A moistureproof sheet may be made by wet waxing, or applying the wax as a surface coating. A third method of imparting moistureproofness to a sheet may be done by laminating two plys of paper together with a layer of wax.

5—Diagram showing method of waterproofing packages now widely used for many overseas military shipments.

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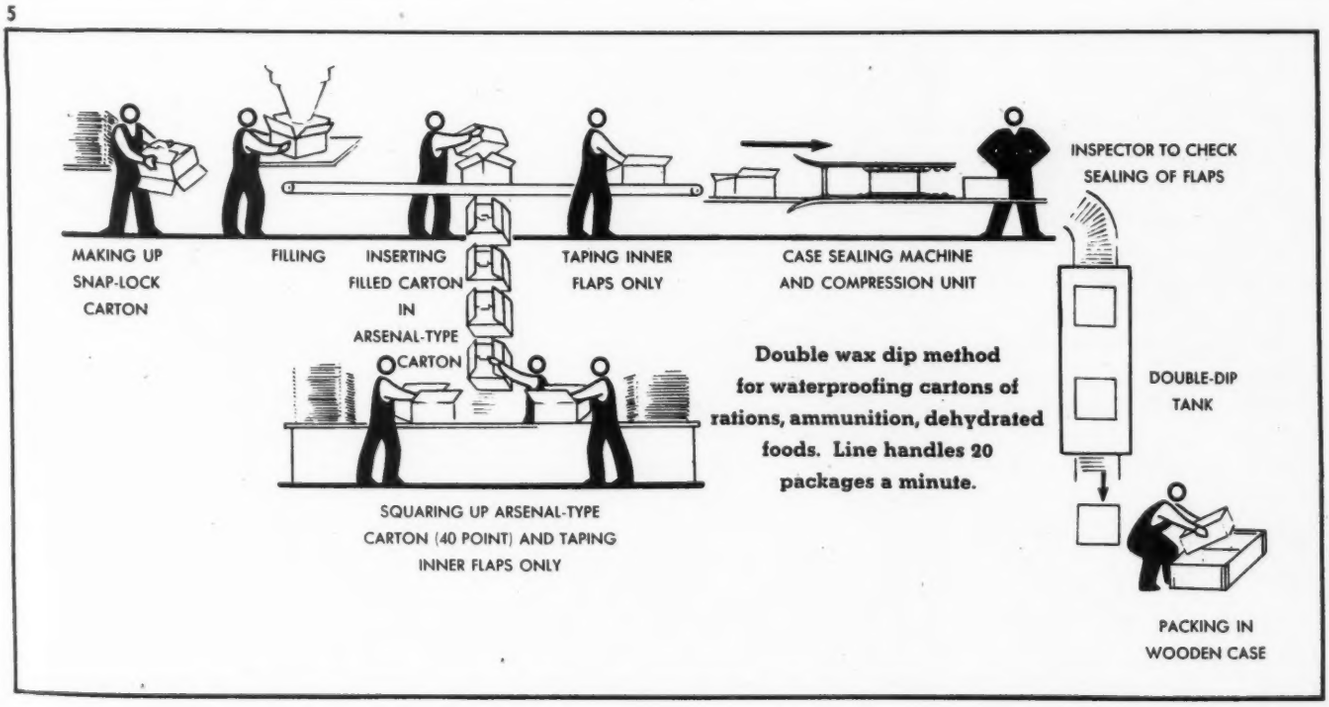

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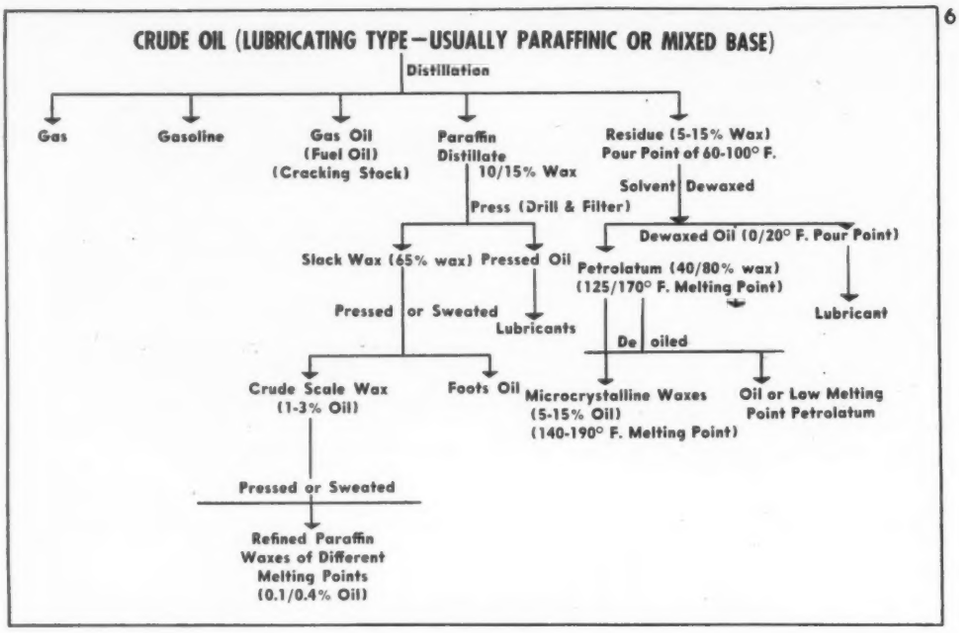

6—This chart, in a simplified manner, shows the derivation of petroleum waxes from crude oil. Paraffins are a different branch of the family from microcrystalline waxes.

field. Microcrystallines have been advantageous for military packaging because of their higher melting points, greater ductility which prevents chipping at low temperatures.

Petroleum waxes in themselves do not provide greaseproofness. Greaseproof properties are a function of the sheet and not of the wax treatment. Glassines, parchments, cellophanes, for example, are greaseproof in themselves, before the application of wax and not because they are waxed.

Blocking is a term used by the paper converting trade to describe the condition wherein two waxed surfaces have flowed together to produce a union between them. Various degrees of blocking are experienced from the incipient fusion in which only the surfaces are marred slightly to the condition in which a cake or block of wax results. Blocking is caused by excessive temperature, time or pressure, either alone or in combination with one another. Blends of paraffin waxes and microcrystalline waxes, it is said, can be prepared which have no more blocking tendencies than fully refined wax.

Total American production of paraffin-type waxes today is between 350,000,000 and 400,000,000 lbs. annually. Eighty per cent of this is used for packaging purposes. Microcrystalline production today is about 100,000,000 lbs. a year, a six-fold increase since the beginning of the war.

Wax may be applied to paper in the following ways:

1. As an emulsion in the beaters at the paper mill.
2. As a coating to paper or paperboard, on one or both sides, by roller method.
3. Immersion of entire paper sheet or board in a wax bath.
4. Dacca Method. Cartons of properly selected stock may be glued on one end then immersed in a molten wax compound which coats both inside and outside of the container. The container is then dried in a hot chamber to give

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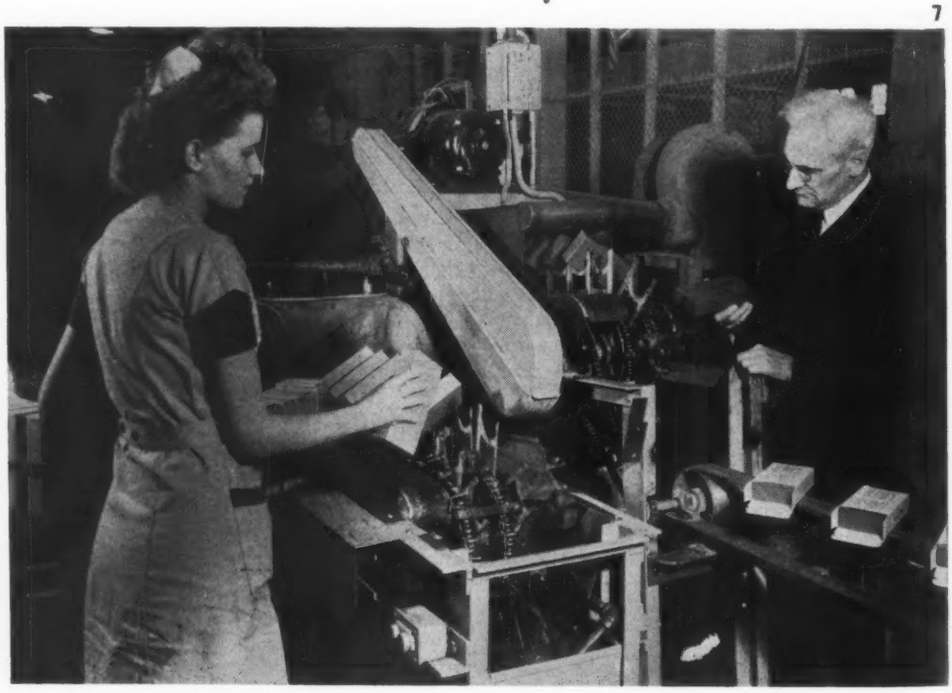

7—Wax waterproofing machine used on Ration K line at General Foods plant. Method is an enrobing action to give desired penetration. Packages are drained in an angular position to eliminate accumulation of wax on edges. Right: F. L. Bryant, chief engineer, responsible for installing this equipment.

a thin uniform coating and finally may be heat sealed.

5. Single-dip Method. Sealed and filled carton is immersed in a molten bath. Extreme care must be taken to have container completely sealed before immersion, so that no wax flows into filled package.

6. Application by flushing-type machines such as the "enrober" or some milk-container coating machines.

7. Double-dip Method. Properly filled and sealed container is given a first dip to impregnate the board to a controlled distance, then is followed by a second dip to give a smooth hard continuous coating. Same compound is used for both dips, but is kept at a higher temperature for a shorter time during the first operation and at a lower temperature for the second dip. Machines for this operation are being widely used for wax dipping many types of rations and ordnance materials.

8. Lamination of two films with a wax adhesive.

Paraffin waxes have been used for hundreds of purposes in the food field for many years. The newest wartime developments are, perhaps, the blends of microcrystalline-type waxes for dipping ration packages and for ordnance wrapping of metal replacement parts to prevent corrosion.

The double-wax dip method used so widely for ration K is also adopted for the packaging of California dried fruit for export, for the Army's now famous 10-in-1 rations (food for one man for 10 days or for 10 men for one day). Just reported is the use of this same method for the packing of .50 calibre aircraft ammunition.

This method has been instituted at the St. Louis Ordnance Plant, operated by the United States Cartridge Co., a subsidiary of Western Cartridge Co. Experience of invasion forces show that, even in hermetically sealed metal-lined wooden boxes, water often penetrated when they were hurled from vessels into the water. This was especially true in invasion operations on South Pacific islands.

Under the new process, .50-calibre cartridges are packed 60 to a container, four containers making up the load in the wooden box which is shipped. After the ammunition-filled metal link belt is loaded into the individual, heavy paper container, the top of the box is sealed automatically, then it passes along a conveyor where the box is inspected for breaks. After inspection the container gets its first bath in molten wax which is heated to 200 degrees. A few seconds later it is immersed again, this time in a 188-degree bath. After the second immersion, khaki belts are placed around the individual containers. These straps are used in unpacking, since the containers are packed so tightly in the metal-lined wooden box that it would be impossible to remove them without damaging the containers.

The double-dip wax application for this ordnance wrap is the same in principle as that being used at American Chicle Co. and other places for the wrapping of the 10-in-1 rations. Cartons for this equipment may be made on standard folding box equipment. Paperboard employed must be carefully chosen. In addition to sufficient strength it must be finished in such a manner that the wax of the first bath will penetrate from 40 to 60 per cent of the board. Cartons must be securely sealed so that no wax enters the package and so that there is no chance of the wax film being broken at the edge of the tabs. Ends must be designed so that it is possible to obtain and maintain a continuous film of wax. Corners must be carefully matched to leave no holes over which the wax film is forced to "bridge" itself. Wax film is in itself structurally weak and requires the unbroken support of the paperboard beneath it.

Packages are taken off the line at regular intervals, say one in every thousand, and tested for their ability to stand up under prolonged storage conditions, rough handling and submersion. In these tests they are subjected to 140 deg. above zero for 24 hours, 60 degrees below zero for 24 hours, drop tests and submersion for 24 hours under a 6-in. head of water.

Another development in a wax-waterproofing machine used on the K-ration packing line at the Franklin Baker plant of General Foods, Hoboken, N. J., is described as follows by F. L. Bryant, chief engineer, under whose supervision the installation was made:

"There were a number of methods proposed for wax impregnating and coating of the various ration packs supplied

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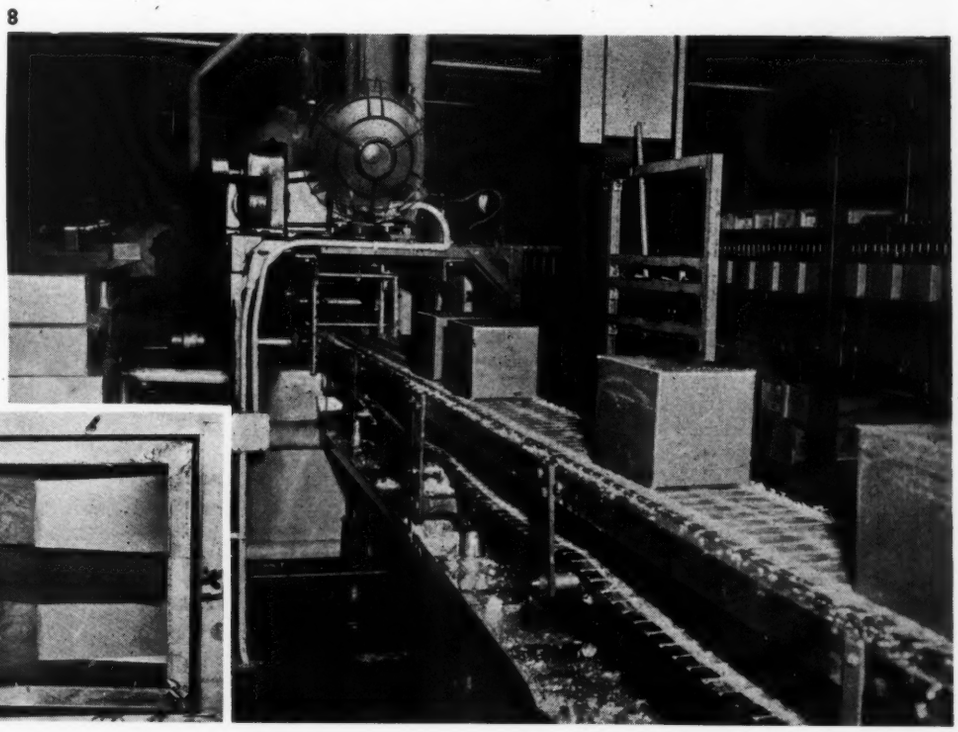

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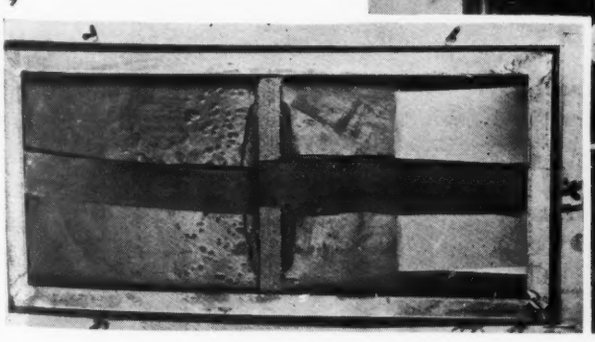
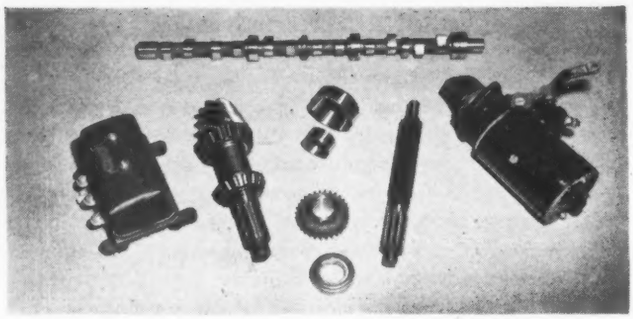


8—Double wax-dipped cartons of .50-calibre cartridges leaving lines at St. Louis Ordnance plant. 9—Filled waxed cartons are placed four in a metal-lined wooden box. Straps facilitate unpacking in the war zones.



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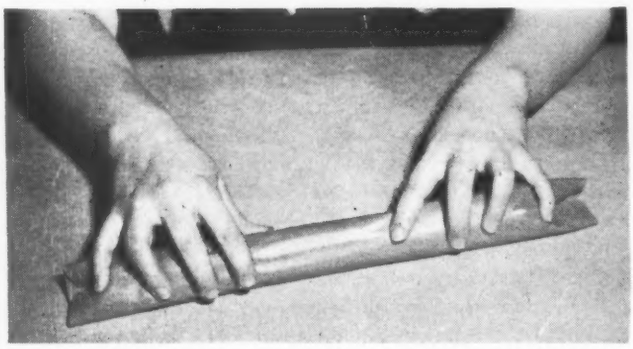

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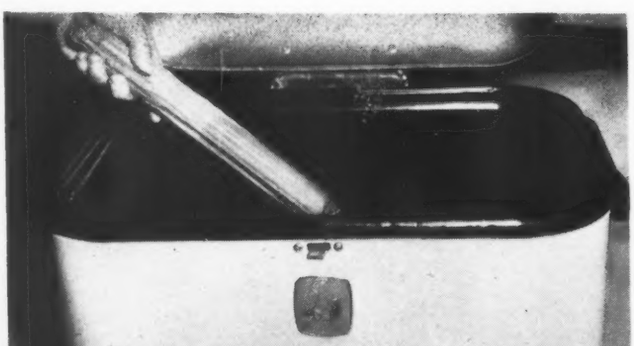

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to the Army, but our experience in 1942 led us to the conclusion that the packages should be drained in an angular position so that the residual wax would flow to one corner and thereby eliminate the accumulation of wax which occurs when the packages are drained to an edge.

"The method of wax application was studied and an 'enrobing' action gave the desired penetration on the first pass with three sets of nozzles and the proper film thickness on the second pass with two sets of nozzles. In both the first and second pass the packages are carried on specially designed carriers that hold the packages so they will drain off at one corner and the nozzles are arranged so that they flood from all four sides, thus insuring complete coverage.

"The machines are equipped with Viking pumps of 55 G.P.M. capacity, the excess wax draining back to a sump tank under the machine where it is strained before passing to the pump suction for recirculation. This sump tank is equipped with an automatic temperature regulator and recorder.

"This whole arrangement makes possible very close control of wax temperature necessary for proper penetration and coating."

The method generally known by its specification, Method I and I-a, has been developed through the joint efforts of automotive and aircraft industry branches of the Army. It

***10**—Parts to be wrapped by Method I and I-a.* **11**—*Splined shaft is rolled in greaseproof wrapper of controlled acidity, which may be one of several approved materials.* **12**—*Open ends are tucked in. Folded ends stay in place due to self-sealing properties.* **13**—*Air space and voids are eliminated by pressing wrapper to part.* **14**—*Wrapped shaft is dipped in molten wax.* **15**—*Finished package. All seams filled and sealed.* **16**—*Variety of completed packages, which may be inserted into shipping cartons.*

15

16

17

17—*Large users test wax-treated papers for such factors as moisture-vapor transmission, strength and greaseproofness of sheet, quantity of wax in its structure, melting point and odor. This is the testing laboratory at the National Biscuit Co., one of the oldest users of waxed papers.*

consists of wrapping a metal part in a greaseproof wrapper and sealing it completely with a compounded wax sealing material. This material is applied hot by hand-dipping.

In more detail Method I and I-a may be outlined by the following steps:

1. Cleaning of Metal Surfaces.

All dirt, cutting or drawing oils or other substances which might interfere with the bonding or functioning of the rust preventative must be removed. This may be accomplished by means of solvent degreasers or hot alkaline washing equipment followed by rinsing in hot running water.

2. Application of Rust Preventative.

The cleaned parts are coated with an accepted rust preventative which may be any of several consistencies recommended for specific performance on various parts. These may vary from a light oil type to heavy, wax-like coatings. These rust preventatives are specified by the Government for use on parts as required. The type used is dependent on several factors, such as degree of protection required, necessity of removal prior to using, type of part to be coated.

3. Wrapping of Parts.

After rust-proofing with a rust preventative, the parts are wrapped in a greaseproof wrapper of controlled acidity which may be any one of a number of approved materials including various laminations of greaseproof papers, cellophane, cellulose acetate, combined to fabrics and strong papers. Also used for this purpose are certain base papers with applied greaseproof coatings. This wrapper is flexible and moldable to permit creasing, bending and folding to conform to the contour of the object being wrapped and retain its shape. All seams must be closed so that the package will not be filled with the sealing material when dipped. Moderate pressure to seal the seams is all that is required. Air pockets are eliminated, it is said, by such method of wrapping.

4. Sealing of the package.

The wrapped part is dipped in a bath of sealing material,

18

18—*Types of waxed-treated paper cans. Honey can is sprayed after fabrication with hot, high-melting microcrystalline. Sani-Flush and tobacco cans are sprayed inside after fabrication with paraffin and plasticizer. Microcrystalline was combined before fabrication in duplexing paper used in winding body of baking powder can. Milk container is immersed in fully refined paraffin after fabrication of the carton.*

heated to a temperature of 180 deg. F. and withdrawn immediately. This sealing material, a microcrystalline compound, is especially blended for this purpose. The dipping time is approximately two or three seconds. After the package is removed from the bath, the sealing material sets at once and can be handled immediately. In hand dipping, it is necessary to dip one-half the package, allow it to set and then dip the other half. A special dipping tank in which temperatures may be controlled within the range of 180 deg. F. to 200 deg. F. should be used. The sealed packages are handled thereafter in several ways. They may be slipped into cartons designed to fit into crates or boxes to hold them securely to insure a minimum of movement during transit. These shipping containers are usually lined with waterproof sheeting materials or bags.

Wax coatings on metal

In addition to their uses for waterproofing and moisture-proofing all types of papers and paperboard containers including fibre cans with metal ends, petroleum waxes have also been used for coatings on metal. The prewar beer can, for example, had a petroleum wax lining. Since tin became scarce there has also been much discussion of wax coatings for collapsible tubes.

Lead is the only substitute for tin in collapsible tubes at present. Obviously it is essential that contents of collapsible tubes be protected from lead exposure. Most dentifrices will absorb some lead from contact with this metal and lather shaving creams absorb a considerable quantity of lead. Most products with an aqueous base will absorb lead when packaged in bare lead tubes.

It is necessary then to find an internal protective coating for collapsible tubes containing lead. Such a coating must be non-critical in supply, easily and rapidly applied, uniform, inexpensive, non-toxic, odorless, chemically inert, insoluble in water, have melting point above usual storage temperatures, flexibility and good adhesion to lead surfaces.

Tube makers differ in their belief in the efficacy of wax coatings for tubes. One company states that after six years of experiment they have no general statement to make because wax compounds differ so widely for various products, as well as equipment used for this purpose by various manufacturers.

Another maker has had some success with microcrystalline base waxes melting 155 to 190 deg. F. Some of these waxes modified with synthetics have been used.

Waxes are applied as a final operation in tube manufacture. The tube is placed over a vertical mandrel having an actuating pin on the top. When the tube is pressed down on the pin, hot wax from a pot beneath the mandrel is pumped out through the top of the mandrel, flushing the tube. This cleans and coats the interior of the tube simultaneously.

The tubes are placed on fluted cones attached to a conveyor which carries them through an oven heated about 40 to 50 deg. above the melting point of the wax. Thus excess wax is drained off. The waxed tubes are then packed ready for shipment.

New developments in waxing collapsible tubes have been largely confined to using substitutes for the particular microcrystalline waxes. However, Government demands on these have made them scarce and more attention is being paid to improve the quality of other possible coatings.

Nearly all dentifrices and lather shaving creams have been packaged in waxed-lined collapsible tubes since the WPB tin order went into effect. Some cosmetic and pharmaceutical preparations have also been packaged in wax-lined tubes. A comparison of lead absorbed by the contents of unwaxed and wax-lined collapsible tubes published in the *Journal of the American Pharmaceutical Assn.* (Vol. 32, 1943) showed a significantly lower absorption of lead in the wax-coated tubes.

Postwar uses of waxes for tube linings, most authorities feel, will depend on the availability of metals for tubes. Some believe there will be little relief in the tin situation for quite some time, even if the war ends. If this is true, then this may be an additional packaging use for microcrystalline wax.

Thermoplastic coatings

Much is being said these days about thermoplastic coatings. Basically these are made from blends of various waxes which are combined in various ways with non-waxy materials to produce a strong, tough film-forming product resistant to the passage of moisture. Makers say true thermoplastic coatings are a homogenous product throughout the operating range of their use and they do not separate, stratify or throw out in the melting tanks. In these character- (*Continued on page 126*)

19

19—A representative collection of wax-treated packages. Bread wrappers and paper milk containers are among the most common examples. Lard cartons, paraffin-waxed outside to repel water and prevent stains, have liner of greaseproof paper. Both carton and top are delivered knocked down. Many waxed packages are replacing metal.

NEW YEAR'S PROPHECY

The packaging field will continue to see plenty of activity, but business "as usual" will not return for a long time to come. People in that field for some time to come will be engaged in a double job: first, keeping the war machine well lubricated and running at top speed, and second, maintaining packaging for civilian production at its maximum efficiency in the face of shortages and restrictions. A third responsibility will be upon us before we know it—that of transforming industry from a war machine to a peacetime economy.

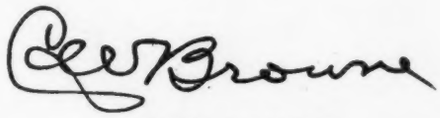
Some say "Wait 'til we win the war before we plan for peace," adding that the war job is so tremendous that it will absorb all our energies, preventing any thought of the reconversion problems of packaging. Without a shadow of doubt, the war job is a tremendous one—the war map today still shows enormous encroachment by the bandit nations. Under no circumstances can there be any let-up in the intensity of our war effort. But it by no means follows that the other jobs can be dismissed from consideration. Rather, those concerned with packaging must somehow find a way to shoulder the triple responsibility.

Bluntly, that means there are no easy times in sight for packaging for many months. Even if war were to end—in any theater—tomorrow, it would be months before some of the present packaging shortages were relieved. For instance, how long would it take to resume the normal flow of tin and rubber? When could the glass factories start making special molds? How soon could the pulp and paper mills obtain manpower to supply packaging's unprecedented needs? It might profit any packaging man to make a list of all his packaging materials—present and projected—and plot a time table of their complete availability after the X-day of victory. That simple exercise would be convincing evidence not only that the days of shortages, makeshifts and adaptations are with us yet, but that any return to normal availability will be a slow and gradual development.

The military procurement officer has something of an advantage today. Indeed, it would be sabotage to question his right to first call for products of every description and for top quality packaging materials to put them in. The civilian producer must serve those military needs first; whatever portion of his regular trade he can serve must be content with what packaging material is left over. Somehow he and his customers must make it do. We have made some departures from our usual standards in packaging, but only the Pollyannas think we have seen the worst. More restrictions and curtailments are inevitable. The challenge of further cuts and sacrifices, the necessity somehow of getting along on less material for packaging, will assuredly come, and it will face us for many months yet. Meeting that challenge will be the sober, unromantic and continuing responsibility of the packaging field.

But the packaging executive can't be let off with that. To the burdens of today and the immediate tomorrow must be added the reconversion responsibilities of day after tomorrow. The military job may come to a conclusion—swift and permanent, we hope—but the civilian job will continue. To be sure, that job may bring new opportunities for increased business, but the transition from war to peace, like the conversion from peace to war, will not be without trial, though it may be without monetary profit. The transition will bring its shocks and dislocations in which the packaging field will share.

Nothing in sight indicates that the job of business will be easy. Everything in sight indicates that resourcefulness and adaptability will be needed more than ever. Yes—and courage of a sort as high in character as that exhibited in battle. For business must pay the costs of the war, must put the returned soldiers to work, must feed and bring to order a war-torn world.



EDITOR-IN-CHIEF

SUPPLY SHIP TO BARGE: Matériel is placed in cargo net and dropped on barge; nets are simply unfastened at one end and jerked away, tumbling containers in a heap.

BARGE TO SEGREGATION DUMP: Same rough tactics are used in transferring containers from barge to truck on shore, except that a salmon board replaces the cargo net.

SEGREGATION DUMP TO UNIT SUPPLY DUMP: Derrick is used to lift half a dozen boxes at a time and drop them in another disordered pile. Speed is only consideration.

WHY 39P16a?

Back from the South Pacific battlefront comes P. P. Kennedy, chief of the Navy Container Section, O. P. & M., with convincing pictorial evidence of the necessity for rigid overseas packaging and packing specifications. His camera reveals the extraordinary and unavoidable conditions of rough handling and exposure in combat areas; it bares the tragedy of container failures which cheat our fighting men of needed supplies as certainly as strikes and enemy bombs. Happily, all of the failures illustrated occurred in pre-specification packages. Packages which conform to the latest specifications (Navy 39P16a, Army 100-14a) were found in good condition—"packed right to reach the fight."

Heavy metal objects were not completely boxed, an insufficient number of nails was used, and the nail-holding power was not great enough to withstand stresses.

Metal tripod badly packed (foreground) in domestic wire-bound crate. Upper right, same container overpacked in open wood box. Left, 4 parts entirely minus crates.

Building material packed in Style 1 wood boxes, with nailed straps at corners. These boxes are now banned for export use. Note the number of ends broken or missing.

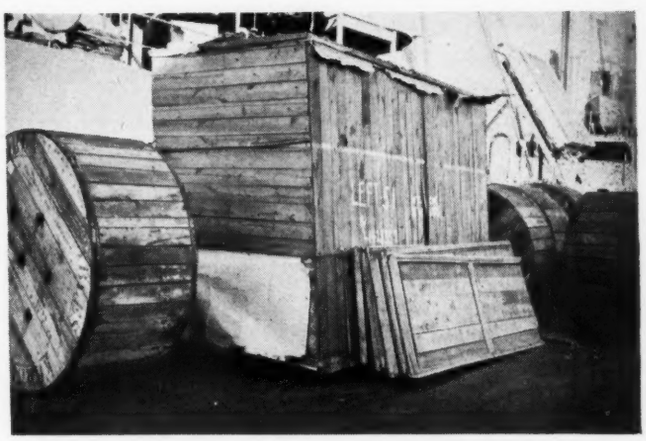
Two wirebound boxes containing identical contents, shipped on same contract. Note condition of top box and thickness of veneer as against specification box below.

Mr. Kennedy's picture story shows only the last and more violent steps in the gauntlet every container runs from factory to fighting front—a minimum of 18 separate handlings, from manufacturer to inland supply depot to coastal supply depot to overseas advance base to combat zone. In the final stages, in which operations are carried out under constant threat of enemy attack, speed is the only consideration. Net-loads of boxes are simply dumped from the supply ship into barges—a jumble of packages large and small, heavy and light. There is no time to sort or stack them. Similarly, they are hurled from barges into ducks or trucks which hurry them ashore into the comparative protection of the palm trees.

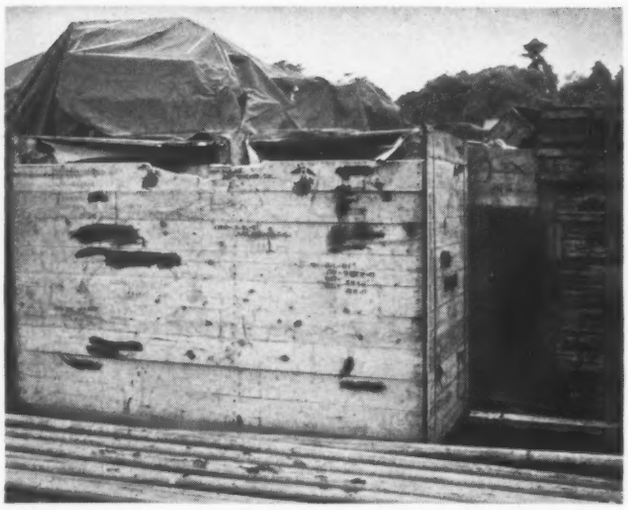
Ashore, the supply dumps are prey to unbelievable conditions of rot and corrosion—tropical heat and humidity, torrential rains, and insect infestation. The best open stor-

Large crates containing mobile equipment. Ends of four of 16 crates are damaged. Crates should have had diagonal bracing at ends and better corner construction.

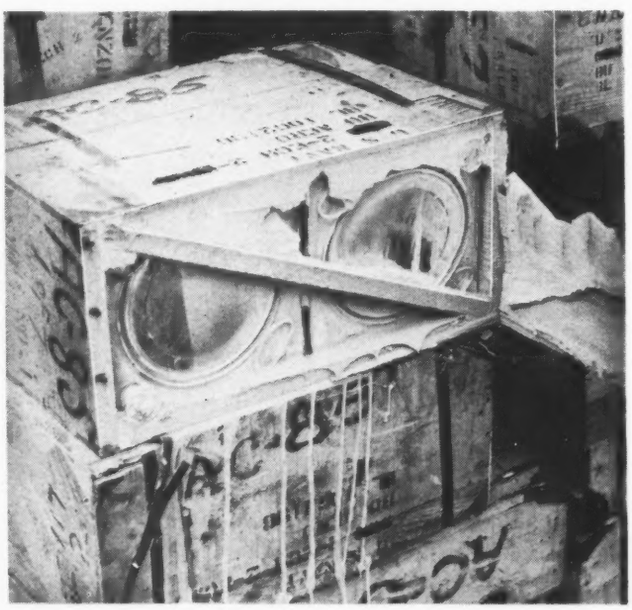
This open-type wood box failed because construction was not stout enough to hold superimposed loads. The unsupported span of the lengthwise boards was too great.



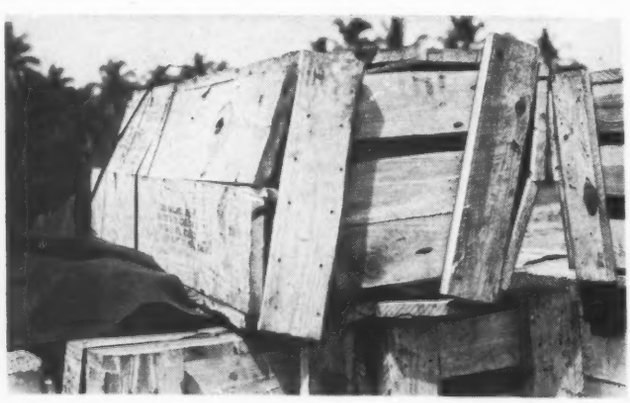
What happens when waterproof paper is put on outside of crates, contrary to 39P61a. Most of paper has torn off during handling; remainder gives little protection.



Crate lacked horizontal top-frame member; when lifted, top crushed. Note horizontal sheathing. Nailing pattern shows no diagonal braces were used in the side panel.



Paint badly packaged in five-gallon square cans with double friction plugs. With this type package, Navy asks that the plugs be firmly seated and then spot-soldered.



This box was of proper style and wood thickness, but with only a single row of nails holding sides to ends and with the nails spaced too far apart, result—it failed badly.

Navy frowns on this Style 4 wood box for long bolts, rods, etc. Such boxes must have great end strength, and care must be taken to be sure that there is no play of contents.

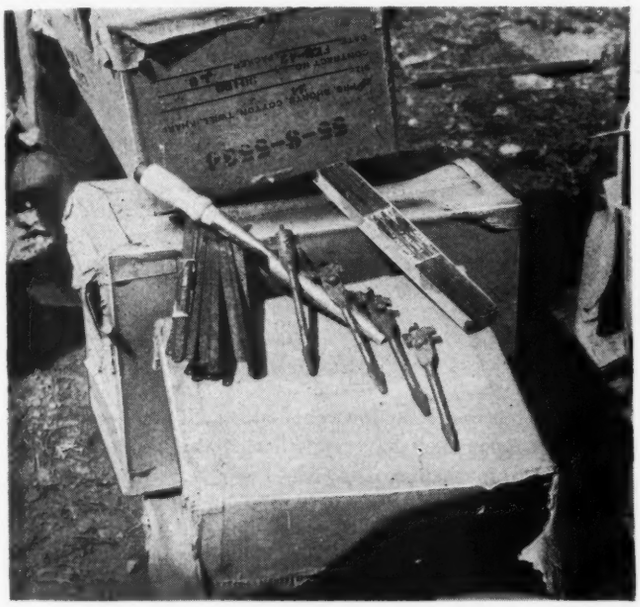
age conditions are bad, but usually—for reasons of concealment—it is necessary to locate supply dumps in the worst terrain. Valleys are utilized not only for concealment but because they have the established roads or trails which trucks must follow; water drains from the surrounding hills to the dumps and makes normally poor conditions even worse. When the rains come, the ground becomes a quagmire and whole bottom tiers of boxes may sink beneath the surface, perhaps to remain there for months. Even during the dry season, wherever ground has not been cleared and the foliage overhead is dense—and these are the conditions desired for highest camouflage—the ground is constantly swampy. Even a light rain will leave broad pools of water standing.

First-hand observation of these conditions, says Mr. Kennedy, would convince any skeptic of the necessity for such rigid packaging specifications as 39P16a.

Natives carrying supplies to unit supply dump. Storage looks dry—but will be a quagmire when the rains come.

Typical dispersion of gasoline drums. Such ground is always swampy, and in wet weather it becomes bottomless.

Corrosion and mold on these improperly packed small instruments are readily discernible; many man-hours must be spent to salvage them—if any are salvageable at all.



Why tools must be treated against corrosion: Chisel was properly rust-preventive coated and greaseproof wrapped; useless hacksaw blades and reamers were not treated.

This picture gives striking evidence of the need for improved exterior coatings for steel containers. Note the complete corrosion of the ring seal of container in center.

These metal parts were well-coated with a rust-preventive but not wrapped; where parts contacted interior box bracing the preventive rubbed off and corrosion was the result.

Adhesive used in laminating these cleated domestic plywood boxes was not waterproof or treated against mold.

A comparison: V-2 boxes are in excellent condition, but ends, sides and vertical scores of several of the old-type weatherproof solid fibre boxes have been very badly torn.

HOW LABELS KEEP *Brand Identity*

1—Containers are entirely different, but the labels retain the recognizable brand name.

A brand name is a very simple thing—merely an exclusive right to use a word device for a defined purpose—to identify a particular product. When it is first used, a brand name is worth only a trifling sum. The value is not in the first use but in the reaction—the continued response—of the people who buy the trademarked product. If they like it, they will remember the brand name and will try to buy it again, if the price suits them. Multiply that situation by constant repetition and you have a substantial good will—intangible but real—something worth spending money to create and to protect.

A brand name is a property right granted by government. It is an exclusive privilege to be used with confidence that government has a responsibility to protect it and government will not directly impair its validity—a compact between government and the owner of the trademark. It is a building block of the social order by which the opportunity to create property values is the incentive for an undertaking in which the rewards are proportionate to the skill and intelligence devoted to the effort.

A meritorious product is given a brand name under which it starts out to give a worth-while service. The owner finds that it meets with public approval. It satisfies a want at a price. The owner seeks to increase distribution by improving the product and/or lowering the price. To accomplish the latter he must lower the cost per unit. Under favorable conditions he attains the goal of mass production, which lowers the cost and brings the price of the product within reach of an ever-widening group of consumers.

This is the "secret" of an economic success which has raised to new heights the standard of living in this country and made it the envy of the world. It is not stretching the imagination to assume that the accomplishments to date are a mere scratch on the surface of a world that is waiting to be rescued from its economic chrysalis. Human wants are boundless, once they have experienced the variety of satisfactions within their reach. Mass production preconceives an unlimited market. It means that information regarding the supply must be carried to vast numbers of potential customers and in a way that will definitely bring back a demand for the advertised goods. Happily, a brand name accomplishes this purpose perfectly. Mass demand to satisfy a common want is possible of fulfillment only by means of a channel whereby that want can be focused on a source of production. The opportunity to adopt that formula is open to any citizen of this country as long as the principles of private property and free enterprise remain the basis of the social order. A brand name is like the keystone of an arch resting on two pillars: (1) the pillar of mass production at low cost and (2) the pillar of mass distribution at satisfactory values. Raymond Moley stated in *Newsweek*, July 13, 1942:

"Products, to be sold, need names, and names are usually the names of makers. Talk all you like about Emerson's man who made the mousetrap and the people who found him in the wilderness, but modern conditions require that we know his name and what wilderness he lives in. To keep reliable trade names alive by reasonable advertising is insurance against postwar letdown. Everybody has a stake in that."

The usual test of the value of a brand name is the number of times annual earnings it will bring when sold at public sale. A few years ago, five times annual earnings was considered a fair price for a business involving the good will of a brand name. In 1925 the Jello habit of the American people was bought for $35,000,000; in 1928 the Maxwell House coffee habit sold for $42,000,000. Recently the going price of a brand name has been placed at ten to sixteen times annual earnings.

Notice that it is not alone the enterpriser who benefits by

the brand-marketing system. By and large the consumers are equal beneficiaries. They find innumerable enterprisers competing for the consumers' election to spend his dimes and his dollars as his tastes may dictate. All products are competitors for the consumers' choice because consumers have different tastes. Freedom of choice in the market place deserves to be listed on the scroll of human rights.

A pole made by the Psychological Corp. on behalf of the Assn. of National Advertisers contained this question: "Do you consider freedom to buy your own choice an important part of the American freedom?" Eighty-nine per cent of the replies were "Yes." The consumer is always comparing his wants and weighing his decision where to spend his dimes. Habit weighs most heavily on the balance. Habit is founded on experience. Habitual association of ideas is the source of the good will of an established brand name. Justice Sutherland, speaking before the United States Supreme Court in the Fair Trade cases, said:

"Good will is property in a very real sense . . . . Good will is a valuable contributing aid to business . . . sometimes the most valuable contributing asset to the producer or distributor of commodities. And distinctive trademarks, labels and brands are legitimate aids to the creation or enlargement of such good will."

The value of an established identity is well illustrated by the fact that the Chinese, a nation of symbol readers, are keen to notice even the slightest change in a "chop mark," their counterpart for the trademark which identifies the source of goods. The Chinese readily detect a false mark of identification. Shippers to Chinese markets know by hard-earned experience that the slightest change in the appearance of the package will arouse the suspicion that the product is not genuine. This trait of the Chinese is practiced unconsciously by other races, but perhaps not so astutely. The point of this is that any tampering with established marks is likely to kill the demand for the product. If customers think that the packaged product may be an imitation or a cheapened substitute, they will pass it by and the good will of consumer acceptance will be irretrievably lost.

According to Fred C. Heinz of H. J. Heinz Co., testifying before a Sub-Committee of the Committee on Interstate and Foreign Commerce, House of Representatives:

"If every portion of the factory, every stick of equipment and machinery, and every book, document, and paper of every kind should disappear tonight through fire or any other cause, bankers would lend money tomorrow on those intangible trademarks and accountants still would write them into assets even if they were the only assets left. Because when you own a consumer-demand which means a brand of goods for which a large number of people ask in the retail stores every day by name, you own something that pays. Bankers and accountants know it pays, hence their respect for well-known trademarks."

The fact that tastes differ among free buyers is a guarantee that monopolies cannot become a by-product of mass distribution. The pioneers of an industry or a branded product can expect to have imitators and competitors if for no other reason than the example that has been set—the method by which it was done. A path that has been blazed is easy to follow. The "tools" are ready for another assignment; the "know-how" is eager for another opportunity. A leader in any field of mass merchandising unwittingly opens up parallel developments which benefit by the experience of the leader, all of which may serve to reduce the cost of a related group of commodities which are competitors for the consumers' dollar.

George Burton Hotchkiss, Professor of Marketing, New York University, testified before a Sub-Committee of the Committee on Interstate and Foreign Commerce, House of

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2—A faithful reproduction of the label from can to carton makes this product identifiable.
3—Two prewar packages and their replacements. Note the exact duplication of the complete trademark.

4—The entirely different shape of the new container presented a problem in the relabeling of this well known cleaning fluid. Notice the careful reproduction of the trademark. **5**—*This dog food is unmistakable in its new container because the labels are the same.* **6**—*By using a wide label on the glass jar, Larsen Co. was able to approach almost perfectly the size and appearance of its former tin label. No chance for error.*

Representatives with the following pertinent thoughts:

"There is always room, of course, for the private brands that follow the leaders whenever a new or improved product is successfully marketed. These followers bear little or none of the developmental expenses; they 'ride on the coattails' of the nationally advertised brands. As a rule they sell at a lower price, for otherwise they could not be sold at all. Many economists believe that they perform a useful public service in safeguarding the public against monopolistic tendencies and unduly high prices."

Mass production is merely a two-word description of a balanced economic relationship between the optimum number of articles that can be sold and the special tools that are designed for the purpose of producing that quantity. A tool may be either a specialized application of power or a more or less automatic installation of assembling machinery. Such installations are justified only when an assured distribution of the product can be underwritten. These are problems for modern principles of engineering; they are susceptible of translation into terms of financing and investment. The underwriting of the investment by private capital presupposes a certain volume of distribution at a given price.

A preliminary survey of the market determines what quantity can be sold at that price. A familiar example in the field of mass production is the automobile. When automobiles were made by hand, the prices were several times the prices that later became available with the adoption of mass production methods. Better automobiles are now sold for less money.

Certain critics of the social order have professed to regard advertising as an unnecessary burden on the consumer. Defenders of the present system have rejoined that an attack on advertising is an attack on the free press. It is unnecessary to put it on that ground. The advertising of mass-distributed products needs no extrinsic justification. Advertising informs the people that certain wants can be satisfied. Advertising tells the world that the manufacturers of certain identified products have invested their money in research, production facilities and publicity expense for the purpose of offering values that will appeal to unsatisfied wants. The cost of the advertising to produce mass production is less than the excessive cost of the wasted effort of small-scale production; therefore, advertising pays its own way. Advertising is the economic catalyst that bridges the gap between unsatis-

fied wants and unused capacities to produce. Brand names enable advertising to do its work effectively.

Nathan D. Golden in *Domestic Commerce*, April 23, 1942, wrote:

"Maintenance of identity through advertising is necessary now more than ever before. This is especially true for those firms which are partially or temporarily out of the market because of scarcities or conversion of facilities to war production. Intelligent advertising tied in with the war effort can maintain the valuable good will of the product and keep alive brand names. Manufacturers will have to spend time, money and ingenuity in devising new packaging brought about by scarcity of materials and in formulating new plans to keep their items before the public. They will also have to educate the public on the new packaging of products, so that old friends will be recognized in spite of their new suits."

The classic example of brand name obsolescence was related by Mac Martin in *Printers' Ink* some years ago: "Pearline's advertising," he said, "had run continuously since 1873. In 1904 the appropriation for that year amounted to $500,000, which was a great deal of money in those days.

"In 1907, the concern having passed into the hands of an estate, the trustees saw an opportunity by which they thought they could save many hundreds of dollars by cutting out advertising.

"In 1914 Pearline tried to come back and I understand that $150,000 was spent in advertising during that year. Now $150,000 even today would make a comfortable dent on the market for a new product. But Pearline was not a new product; it was a product trying to come back and this is hard to do at any time.

"The very next year the company was sold to a competitor, a younger organization, but one whose policy was different. I understand that Pearline was sold for just the cost of the machinery as junk and the stock on hand as raw material. I have heard that the price was $12,000."

Branded products are of several categories which might be classified in various ways. Each class of merchandise has its characteristic qualities and there must be a certain amount of overlapping. At one extreme might be products like machines or other instruments for accomplishing mechanical operations, whose efficiency is determined by standards of performance. At the other extreme might be products like foods, drugs and cosmetics, whose (*Continued on page 124*)

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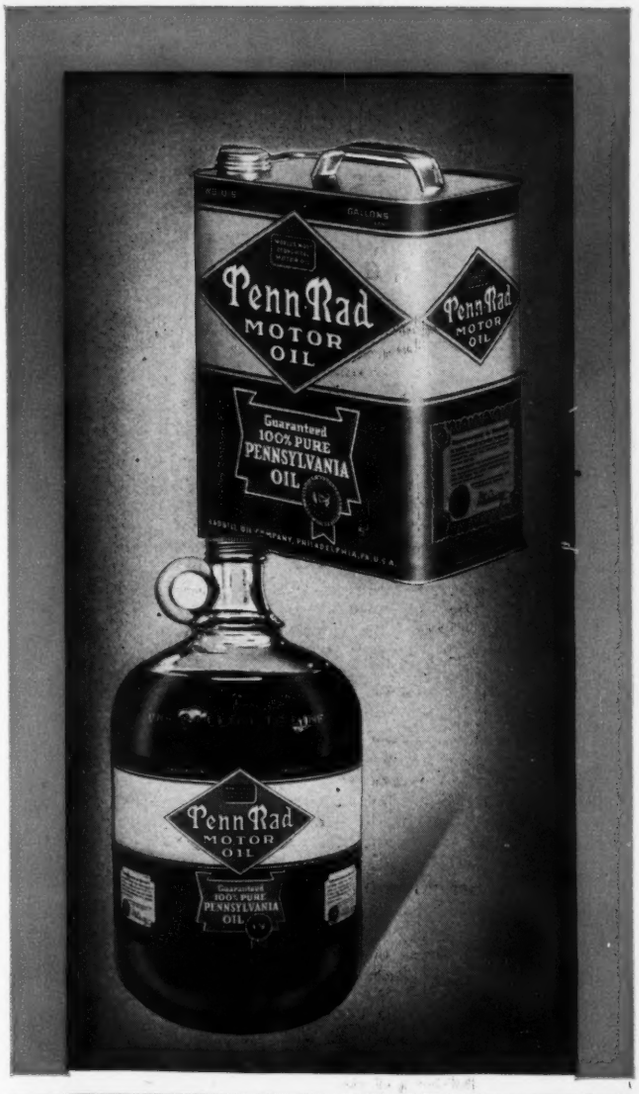

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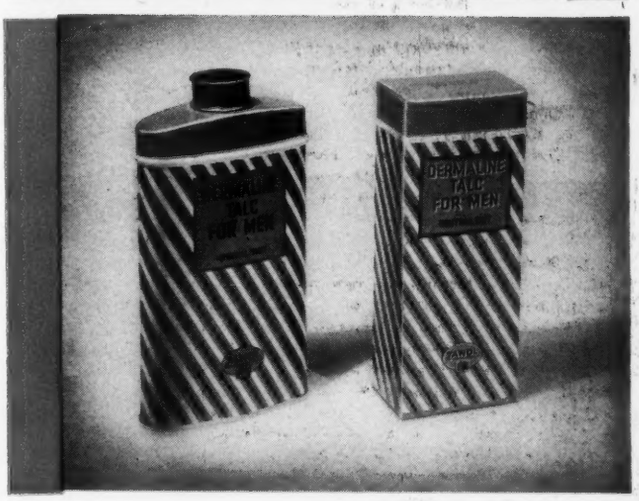

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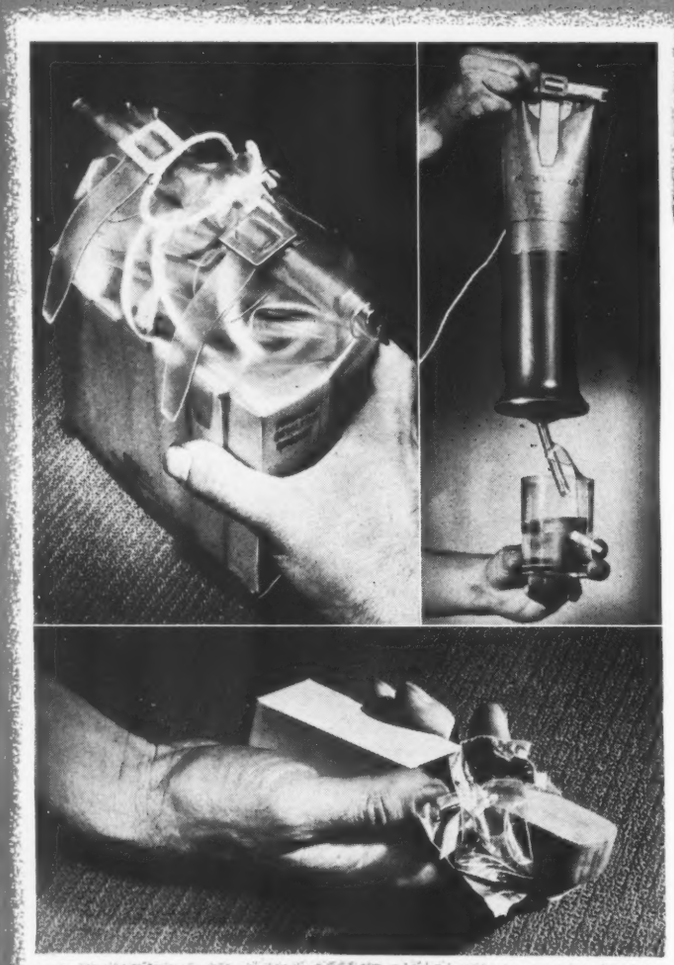
***7**—Motor oil had to go into glass, but the new label had to be recognized easily. Illustrated is a successful switch.* ***8**—Zanol not only kept their brand identity when they switched from can to carton but they also devised a satisfactory sift top for their new package.* ***9**—The Libby label remains the same although the product now comes in glass. Going from one container to another presents no problem for this well known product.*

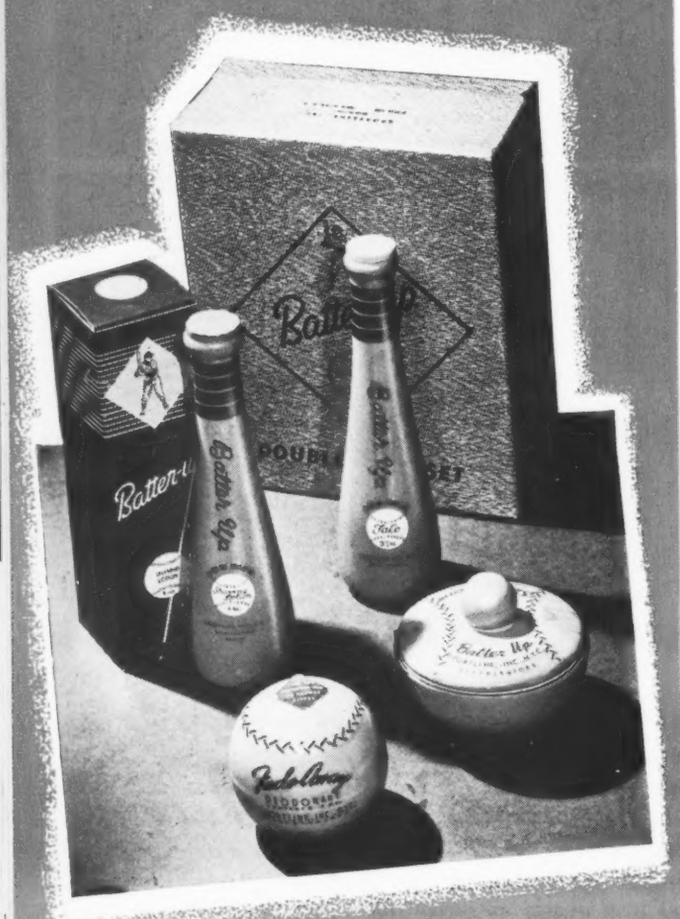


DESIGN

Seawater desalter

A new unit for taking salt out of seawater has been recommended by the Naval Medical Research Institute. No small part of this development which permits a flier to carry the makings of a 14-day supply of drinking water in his life raft was the packaging which had to be completely waterproof, lightweight and compact. The chemical is packed in the form of briquets, six to a unit, and each is heat sealed in a laminated pliofim and foil envelope. Each briquet weighs only $^1/_6$ as much as the water it produces, takes $^1/_{10}$ as much space. These packages are placed inside a carrying bag of vinyl film equipped with cords and buckle to attach it to life raft or around the flyer's neck. Inside the vinyl carrying bag is another vinyl bag, shown top right. The flier scoops up seawater in this bag, drops in a briquet, shakes for 20 minutes, then sucks the water through the tube. The chemical and absorbed salts are retained in the bag by a cloth filter. Unit weighs $3^1/_2$ lbs.; converts more than 14 pts. of seawater. The new chemical was the result of months of research by the Permutit Co., New York.

Credit: Vinyl bags, Carbide and Carbon Chemicals Corp., New York.



Play baseball!

Because baseball is America's number one sport, the "Batter-Up" series was born, claim the founders of Sportline, Inc. The thrills of the national game are caught in the pottery containers for shaving cream, shaving lotion, talcum and deodorant. Decalcomania trim makes the shaving bowl and the deodorant container look like excellent replicas of baseballs. The deodorant container is filled from the bottom and corked. Holes in the top which are sealed until ready for use make the dispenser. The bats of talcum and lotion are reproduced even to the "tape-wound" handles and closed with a cork which is held in place by a gelatin cap which acts as a seal. Folding boxes are used for individual sales while sets are packed in set-up boxes which carry out the baseball theme. Even the names of the sets are taken from the game, for example, "Home Run Set," "Three Base Hit Set," "Two Base Hit Set," and "Double Play Set."

Credit: Pottery, Robinson Clay Product Co., New York. Decalcomanias, Meyercord Co., Chicago. Wood stoppers and corks, Armstrong Cork Co., Lancaster, Pa. Gelcaps, Parke-Davis, Detroit. Set-up Boxes, Huschle Bros., Long Island City, N. Y. Folding cartons, Warner Bros. Co., Bridgeport, Conn.

HISTORIES

Cubes of shortening

Users of large quantities of Vreamay vegetable shortening are now buying it in 50-lb. cubes in a wartime package. The company claims that no essential materials are used in this carton which replaces the old metal drum or "tierce." The 350-lb. test weight fibreboard container with its specially designed cellulose liner is said to step up shop efficiency. In the first place it is lighter than the old drum and because each package is uniform in weight, ration points can be figured exactly on any size order. Uniformity also makes control costs more accurate. These cartons stack away into a relatively small space, making storage a much easier problem, and when they are opened the fibreboard box folds flat for return shipment and the cellulose liner peels away cleanly, with no waste. The cube can be divided into as many parts as needed simply by cutting. Swift advertisements claim "Vreamay" can be had in its new package for the same per pound price as in the old tierce.

Credit: Cellulose liner, Traver Corp., Chicago. Carton, Eddy Paper Corp., Chicago, Monroe Paper Products Co., Monroe, Mich., and others.

Plastics in the air

Paratroopers and men of the Army Air Force will certainly be able to "live alone" when they land from the skies equipped with these transparent boxes of molded cellulose acetate. The light weight material makes the boxes a natural for air-borne troops. The self-sealing tape which holds the lids to the boxes strips off easily. The complete contents of the oblong ration kit are not available for publication but some of the things it does contain are concentrated rations, bouillon powder, chewing gum and a water bag. The round first-aid kit which is used in the main by paratroopers is designed to fit snugly into their standard frying pan. It contains bandage compresses, band-aids, tincture of iodine, a suture needle and thread, malaria tablets, tea and sulfadiazine. The containers are a wartime adaptation of the old familiar powder puff and gift boxes. A laboratory directed change in formula and an improvement in the method of mass production is said to have resulted in the molding of these emergency equipment boxes in quantities sufficient to meet needs.

Credit: Plastic kits, Master Plastic Molding Corp., St. Louis, Mo. Cellulose acetate, Cellanese Celluloid Corp., Plastics division of Celanese Corp. of America, New York.

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1—*A 13-gal. carboy of aluminum should have many advantages for holding liquid chemicals corrosive to other metals.* **2**—*I.C.C. aluminum shipping drum is light weight resists corrosion, saves handling and freight costs.*

When Aluminum Returns From The Wars

*by Nathanael H. Engle**

Aluminum may already be coming back for limited civilian service. Washington reports (page 106) that aluminum is no longer critical and that its control is due for "orderly relaxation." A high official has been quoted as saying we have so much "it is running out of our ears." WPB order M1-I permits the use of aluminum in collapsible tubes. But the extent of immediate packaging uses appears limited by availability of processing facilities.

From tank cars to toothpaste tubes, from carboys to chewing gum wrappers, aluminum is ready with an answer to postwar packaging problems. Held back by lack of even enough aluminum for samples or models, research has nevertheless pressed forward and new ideas have been developed in readiness for V-day.

Postwar uses of aluminum in packaging stem from prewar uses and from wartime developments. Precluded from use of aluminum for war packing, designers have been compelled to use substitute materials. Some of the competitive products may stick after the war but many producers are ready to flop back to aluminum as soon as they can get it.

Prewar uses

A review of prewar uses of aluminum provides a refresher course needed as background for appraising the future. Then, after a glance at wartime developments, one is ready for a postwar preview.

Largest use of aluminum in the prewar packaging field was in the form of foil with average annual consumption of over 6,000,000 lbs. Aluminum foil was used to wrap a wide variety of products including chewing gum, candy bars, cigars, cigarettes, dairy products, toilet and drug specialities, and many others. A growing use was being made of aluminum foil in the labeling field, ranging from packaged teas, dried fruits and other packaged food products to bottled beverages, canned goods and packaged women's accessories. Aluminum alloys in the form of sheet were also used for such purposes as packing Norwegian sardines, California tuna and for containers for chemicals.

The growing use of aluminum in the container and packaging fields before the war was due to the inherent virtues of this light metal. One of the most easily worked of all metals, it offers to the package designer other unique qualities, such as resistance to moisture, heat, light and chemical action. Because of its non-toxic quality it is peculiarly adapted to food packaging. Moreover, it lends itself to attractive surface treatment with or without color.

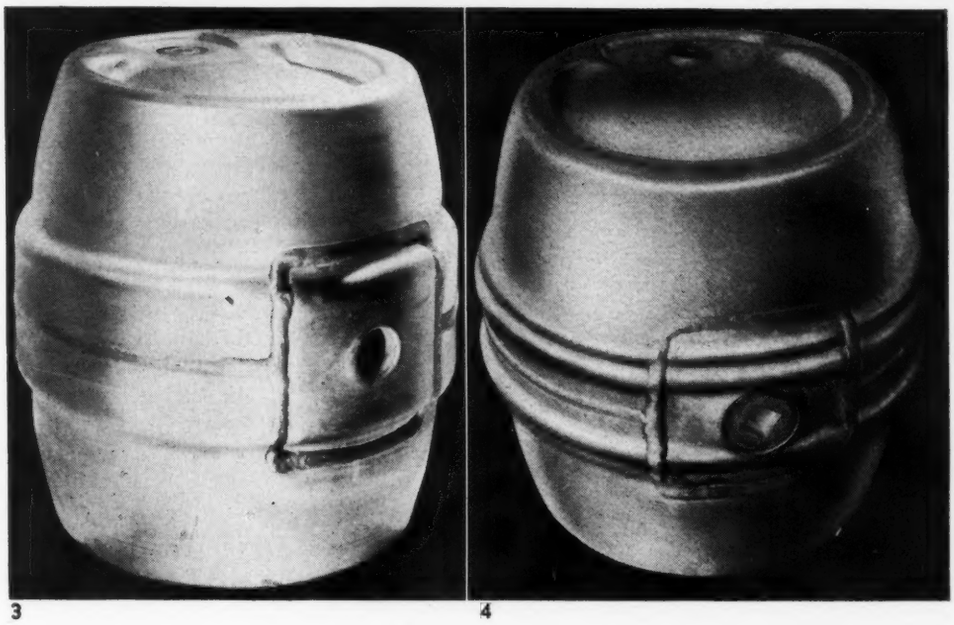
Wartime developments

During the war a moratorium has been declared on the use of aluminum for very much besides flying fortresses and other vital war uses. Packaging problems which would ordinarily have been solved by aluminum have had to be tackled with substitute materials, which may give way to aluminum when the war is over, according to experts in the field. A few wartime packaging developments are of interest for this very reason and are presented with the thought that they point to new postwar uses of aluminum. These uses are both for military and for civilian products.

The American Bible Society has provided the answer to many a sailor's prayer by supplying copies of the New Testa-

* Director, Bureau of Business Research, University of Washington, Seattle.

3—Large after war market is expected for aluminum beer barrel. Photo shows barrel ready to be fitted with wood bung. 4—This view shows container converted from its use as beer barrel to container with metal fittings suitable for more general usage.



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ment for life boats and rafts in a moisture-vaporproof container of laminated kraft, foil, asphalt and cellophane that will keep out the sea. In normal times the foil in this laminated combination could be made of aluminum.

Victims of submarine warfare must have their material as well as spiritual nourishment. Well suited to the rigors of life on a rubber raft is the foil-lined Life Boat and Emergency Ration package. Impervious to sea water the package keeps the food fresh until needed. In normal times not only the lining of the carton but the individual wrappings of each food bar could be made of aluminum foil.

Both of these items, the book container and the food ration package, may offer suggestions for designs of the future. Travelers, campers, hunters, explorers and others who may stray from the smooth surfaced highways should provide a market for such package designs. (See illustrations.)

With modern warfare winging its way from sub-zero arctic regions to the humid tropics packaging has become of supreme importance for many products. Even ammunition must be safeguarded from moisture and corrosion so that it will be sure to work when the user needs it. Thus, foil again comes into play in packing machine gun bullets and other ammunition.

Similarly first aid kits of every soldier are protected by a foil lining and often by a wrapping for the individual items in the kit, against moisture, heat and cold.

Wartime uses? Yes, of course, but what of the hunters, the boy scouts, the miners and the engineers who venture into far places in peacetimes? Even in these war uses possibilities exist for peacetime packaging.

Foil-lined carton for dehydrated Navy Bean Soup, another war baby, is a package and a product which bridges the military-civilian gap and offers food for thought for the designer of postwar food packages. Dehydrated foods appear to be

5—Wartime development of aluminum foil laminated with kraft, cellophane, asphaltic adhesives and thermoplastic adhesives is used for bags in lifeboat rations. 6—To safeguard machine-gun bullets from corrosion. 7—To line carton for dehydrated Navy Bean Soup. All have post-war possibilities.

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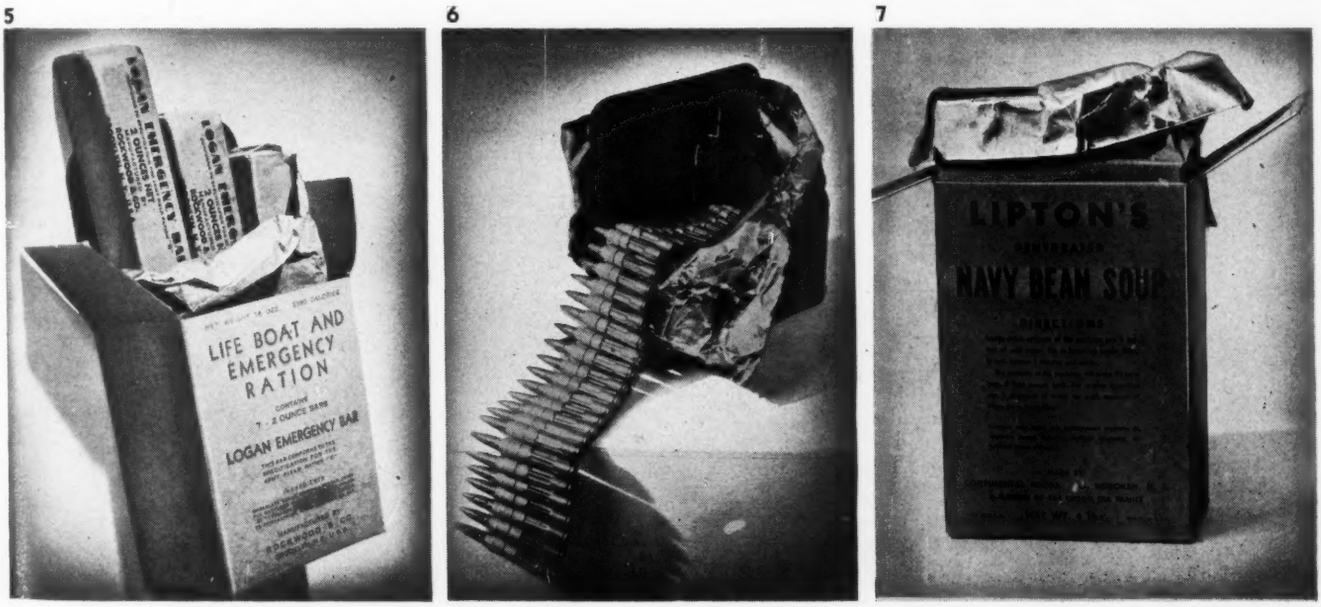

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8—*Launched as a wartime product to take the place of a metal can, this spiral-wound, aluminum foil-lined can with metal ends has advantages which may become permanent.*

making rapid advances which may well carry over into the future. The possibilities of conserving surplus crops by dehydration and shipping otherwise bulky products to the ends of the earth are attracting the serious thought of many people. A large immediate postwar market is in prospect in the task of feeding the starving people of Europe and Asia. Dehydrated foods will play a part there without doubt and suitable packages will be in demand. Aluminum foil is an excellent protective material for such packaging.

A wartime civilian package is the laminated foil moisture-vaporproof envelope for prepared soup mix. While lead is used to make this envelope now as indicated in the illustration, aluminum foil will be an important material after the war. The possibilities for other food products need no comment.

Most of these wartime developments point to an important general postwar field, namely, that of packaging for export. Notably neglected in the past, satisfactory packaging for overseas trade is an essential to build and hold foreign markets. Undoubtedly, a very large demand from abroad for American products will develop after the war. Shipments to tropical countries in particular and of perishable products in general present challenging problems to designers of containers and packages. Helpful hints inhere in such wartime developments as have been noted.

Closely related to this field is the packing envelope required in present government shipping specifications. A watertight container for shipping documents, it may be attached to the box, barrel or bale, and be expected to reach its destination with the papers in as good condition as when they left the shipper's office. Aluminum foil may be used as an interliner in this type of envelope, which is made by a lamination of kraft, special asphaltic compound and solid sheet of foil, with a protector film on the surface.

Postwar uses

Aluminum coated sheet steel, although little used in the past, may compete with tinplate in the future. Price has been a limiting factor in the past, but aluminum has dropped from 20 cents prewar to 15 cents a pound now and may fall even lower after the war. For some uses a lower price is essential. For example, the president of a large manufacturer in the container field informed the author that "the price of aluminum is an important consideration of its use in the container industry. Low cost aluminum could be in competition with tinplate in the sale of cans, especially in the food industry." He pointed out the superiority of aluminum over tin for canned fish, canned corn and other food products which react chemically against tin. Aluminum-coated steel sheet is already perfected for the manufacture of aluminum cans after the war.

Other uses of aluminum after the war in the container field are shown in the accompanying illustrations. The light weight of aluminum dictates its use for beer barrels. A very large postwar market is anticipated for this item. A carboy has been specially designed of (*Continued on page 116*)

9—*New Testaments for life boats are protected in heat-sealed, foil-laminated packets.* **10**—*Because of its resistance to moisture, heat, light and chemical action, aluminum foil has long been an excellent protective material for dehydrated soups.* **11**—*Flexible aluminum laminated bag-in-carton for overseas shipments of dehydrated vegetables.*

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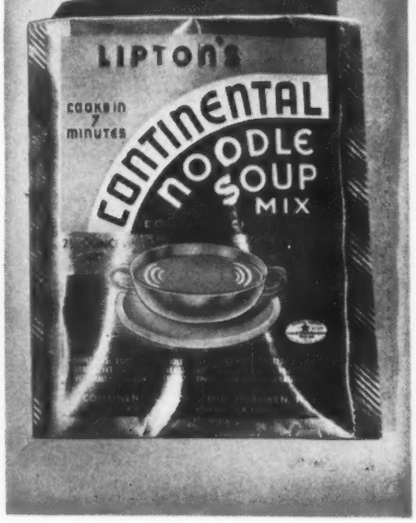

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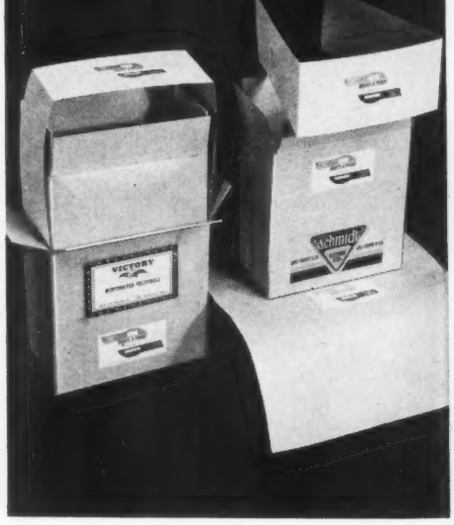

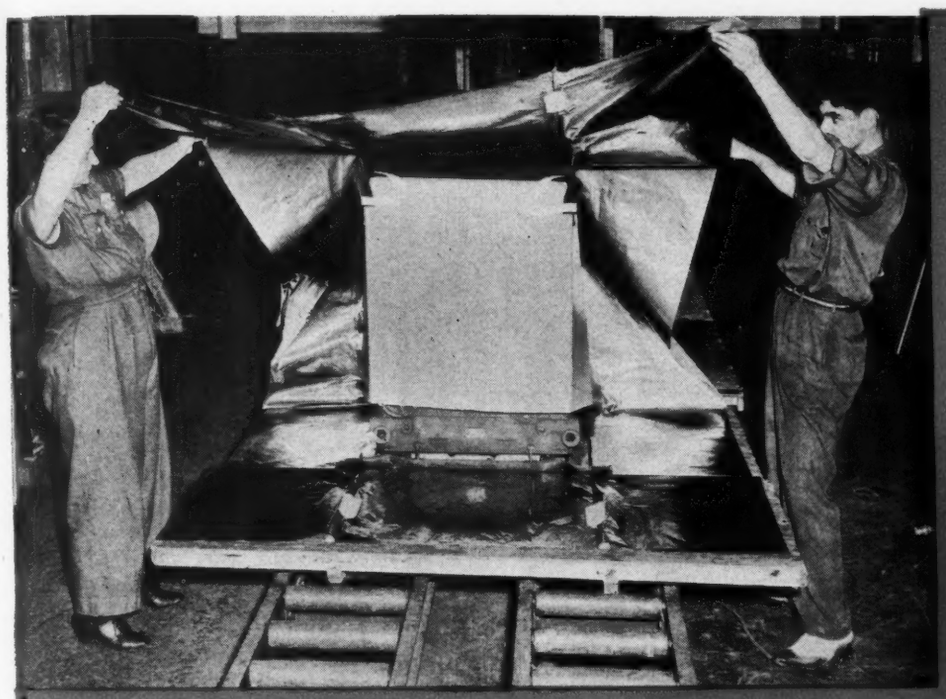

HOW HENRY FORD SHIPS WAR GOODS

One of the most delicate instruments of this war is the robot-like anti-aircraft gun director—a complex mechanism of some 12,000 parts, so ingenious that it seems almost to "think" for itself.

Yet this heavy instrument, which could be ruined by shock or by contact with sea water, is intended from the beginning to be thrown overboard—perhaps a mile at sea—and left to wash ashore to troops on a beachhead where there may be no harbor for supply ships.

Obviously, this has required the development of a new technique in packing.

At the Highland Park plant of the Ford Motor Co., where it is manufactured, the director is made proof against moisture, vapor, changing temperatures, rust, corrosion, jolting, dropping and shock. When our fighting men pick it out of the surf, it is ready for action.

The first steps in packing are to tie securely all movable pieces, coat all finished metal surfaces with a rust-inhibiting solution and cover them with oil-resistant waxed paper. Because of secrecy surrounding the instrument, these preliminary steps cannot be pictured in the illustrations.

The wooden floor of a special packing crate is covered with a three-layer dry-pack paper made up of 30-lb. asphalt between two layers of 60-lb. kraft. Tar paper is then placed over the dry-pack to go immediately next to the instrument and bags of silica gel are placed inside the wrap.

The director is then bolted to the floor of the crate, covered with a cardboard shroud and padded with felt to protect further against jolts. Then the vapor barrier is olded to enclose the unit completely.

At this point an ordinary hand-type vacuum cleaner and a converted soldering iron are brought into play.

The heat-sealing iron is a Ford-converted American Beauty electric soldering iron, with a roller attachment replacing the usual metallic point. With this tool, all open edges of the vapor barrier are effectively sealed airtight, excepting a small opening provided for the nozzle of the vacuum cleaner.

Fitted to this opening, the vacuum cleaner draws most of

1—Concealed in cardboard, gun director is wrapped with a vapor barrier. **2**—*Converted soldering iron seals open edges of vapor barrier air-tight.* **3**—*Through a special opening, later sealed, hand vacuum cleaner withdraws air.*

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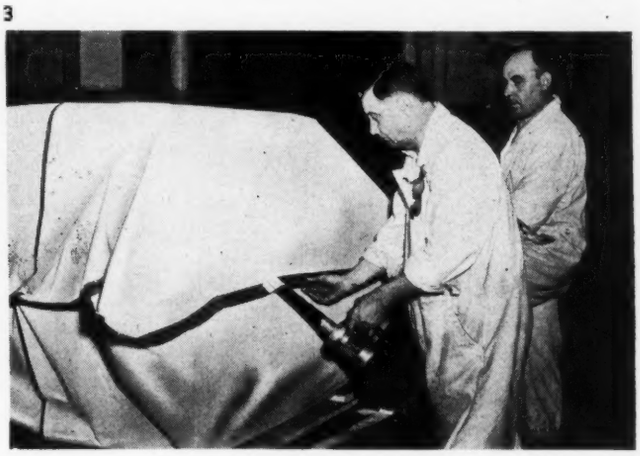

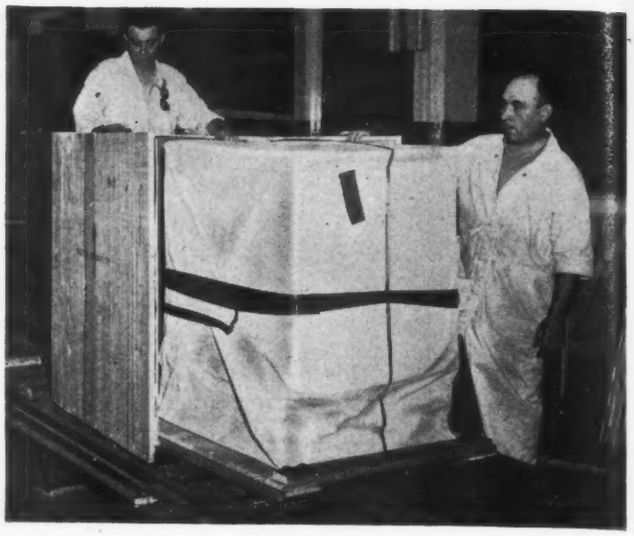

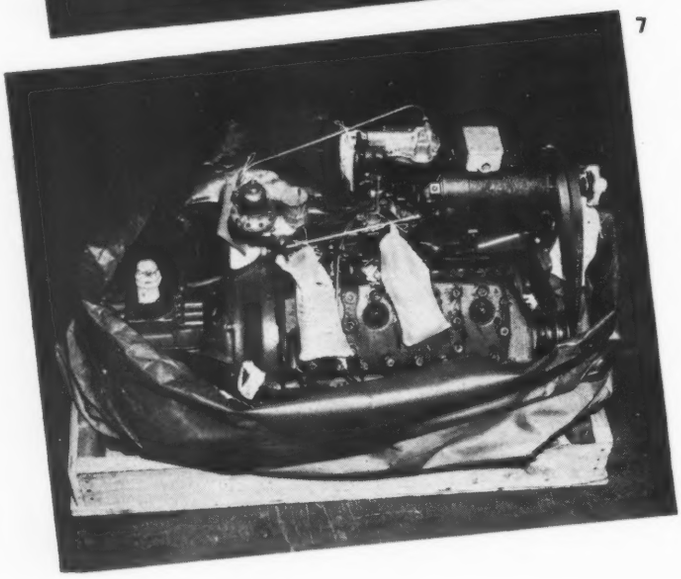

4—Fully sealed, director moves into a prebuilt shipping crate. 5—Application of tar waterproofing completes the job. 6—Pliofilm bag in place in base of truck-engine box. Note mounting brackets. 7—Engine inside the bag.

the air out of the package and the opening itself is then heat-sealed.

Finally, the top and sides of the crate, previously prepared are fitted into place and the entire crate is given a coat of tar waterproofing compound.

A similar procedure is followed in packaging crankshafts, transmissions and motors.

Wooden boxes to contain truck motors are prebuilt to careful specifications with three attaching brackets in the base. A moistureproof pliofilm bag is laid in the base, the motor dropped into place and the pliofilm sealed over it by means of the electric iron. Prior to being placed in the case, the motor has been prepared internally according to Government specifications and all unpainted outer parts treated with a coating of grease. Extruding parts are padded to prevent puncturing the pliofilm. Five pounds of silica gel, packed in 1-lb. bags, are distributed at various points within the package.

When the wooden crate for the motor is sealed, all junctions are protected by waterproof seals. To preserve airtightness, no nails are used in closing the box; instead the exterior is tightly bound by $^3/_4$-in. strap iron.

On other materials various kinds of anti-rust preparations are used. High precision parts, for instance, usually receive hot dips in grease, while others are cold dipped. Silica gel is sometimes eliminated in non-electric parts or those on which outward coating is not feasible.

The procedure at the Rouge Aircraft plant of the Ford company, where Pratt & Whitney 2,000-hp. engines are built, is substantially the same. Despite their size and weight, these engines are sealed so effectively that months of storage or exposure are said to leave them virtually unaffected. The crating procedure for these engines is simple, yet effective.

When it reaches the end of the line the engine is complete except for the carburetor, which is removed and shipped in a separate box within the main container. The engine is hoisted into the air by its propeller shaft and a pliofilm bag is slipped around the bottom of the engine.

A mounting plate is fastened to the engine and the whole affixed to the lower portion of the packing case. Crimp

paper is wrapped around the motor to protect the pliofilm bag from possible punctures and 16 lbs. of silica gel is distributed within the engine.

The top of the pliofilm bag is then placed in position and air withdrawn from the envelope by means of the converted vacuum cleaner. Heat sealing with the soldering iron follows.

Prior to installation of the pliofilm envelope, the standard silica gel humidity detector is affixed to the motor at a point opposite a peep hole in the upper portion of the packing box. Any workman who examines the package en route to its destination can tell at a glance whether or not the contents are in danger of damage from rust or corrosion.

In addition to the carburator, the accessories, plugs and tool kit are packed similarly on a smaller scale and placed within the large container.

The two portions of the packing case, as well as the peep hole, are examined and then sealed by Government inspectors, after which the box is banded by $1^1/_4$-in. band iron and is ready for delivery.

These boxes, incidentally, are manufactured by an outside contractor and are made of new, tongue-and-grooved lumber.

The problem of shipping jeeps over great distances has also met with marked success in the Ford packaging procedure. The following parts (*Continued on page 120*)

***8**—Engine completely wrapped and heat-sealed. Box is lined with tarpaper.* **9**—*No nails are used in final closing of box; ¾-in. strap iron holds ends and top. Note tarpaper sealing edges.* **10**—*Standard pliofilm and silica gel procedure is used in packing aircraft engines.* **11** *and* **12**—*Steps in packaging a jeep in flat crate. Wheels and other protruding parts are removed and packed flat inside jeep, which is dropped on a specially prepared base on roller conveyor. Bags of silica gel are included. This is a model of compact industrial packaging.*

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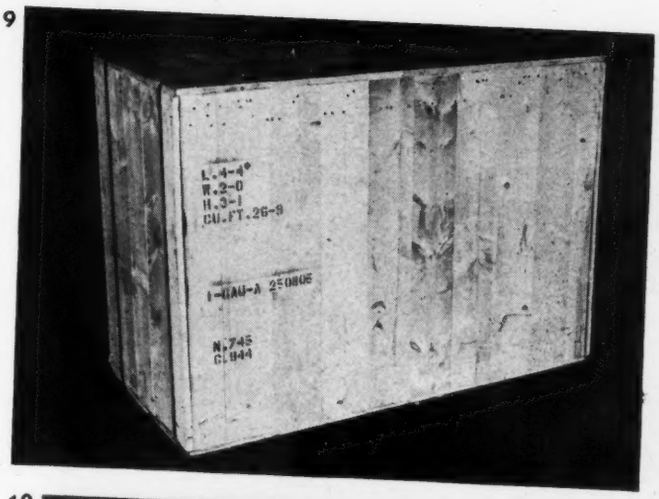

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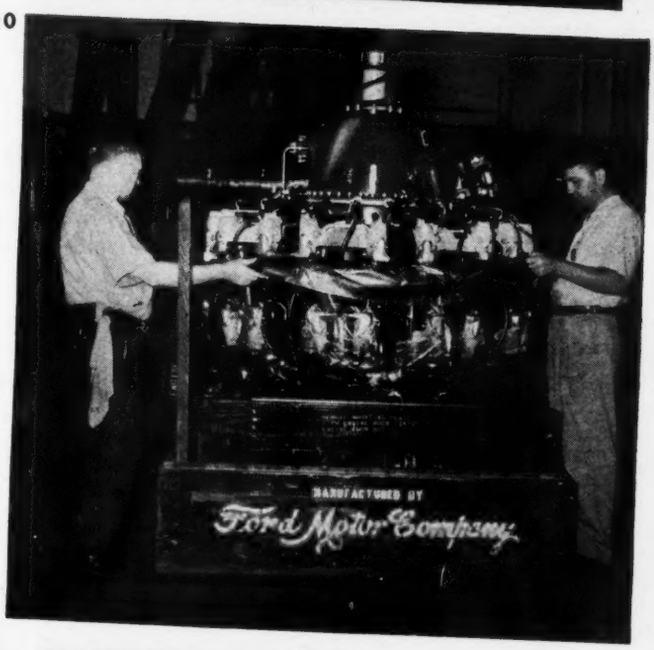

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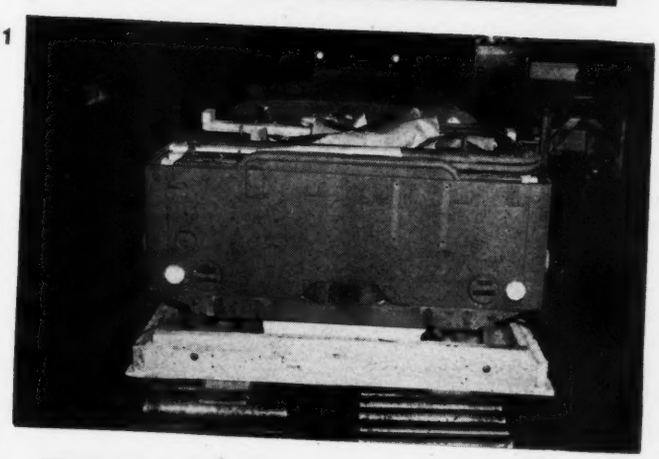

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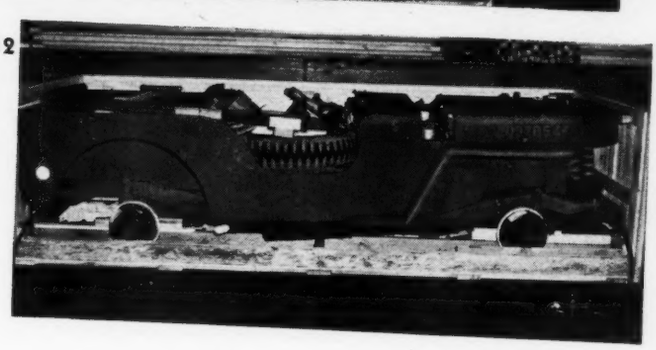

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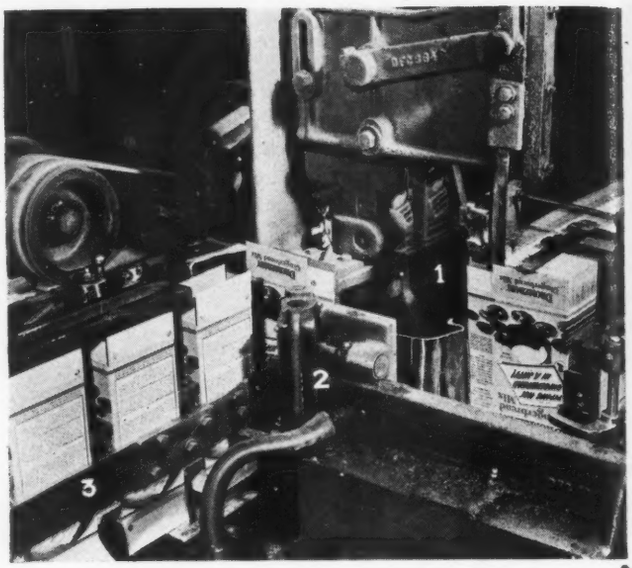

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1—This sift-proof, air-tight package is turned out 60 a minute on a fully automatic packaging line 120 feet long. Shown are paperboard carton and glassine liner which comprise the package. 2—At start of packaging line, a knife (1) automatically opens the carton, passes it to a vacuum holder which conveys it through rollers (2) to square up the carton and start it on track which opens up flaps (3) for gluing.

Manpower versus machine power

An interesting comparison of semi-automatic and fully automatic packaging methods may be found in the Brooklyn plant of The Hills Bros. Co., where an unusually difficult job of food packaging is being handled successfully on a 120-foot automatic line.

The product is a powdery gingerbread mix, which is put up in a sift-proof, heat-sealed glassine bag, holding 14 1/4 oz. net, inside a paperboard carton. On one packaging line, which uses semi-automatic methods, production is at the rate of 18 packages a minute and 13 operators are required; on the second, a fully automatic line, only seven operators are required and output is at the steady rate of 60 packages a minute.

The automatic system, recently placed in operation, is actually an assembly of a number of standard machines, with adjustments worked out during a trial-and-error period to fit the special needs of the job. Working as one continuous unit, it takes cartons from a magazine, opens each one up, glues flaps at bottom, inserts the glassine liner bag into the carton, fills the package to within approximately 7/8 of capacity, shakes the fluffy mixture down, dribble fills to full capacity at a second filling station, gross-weighs the package, heat-seals the bag, closes and glues the carton flaps on top and discharges the package ready for shipment—all in approximately one minute.

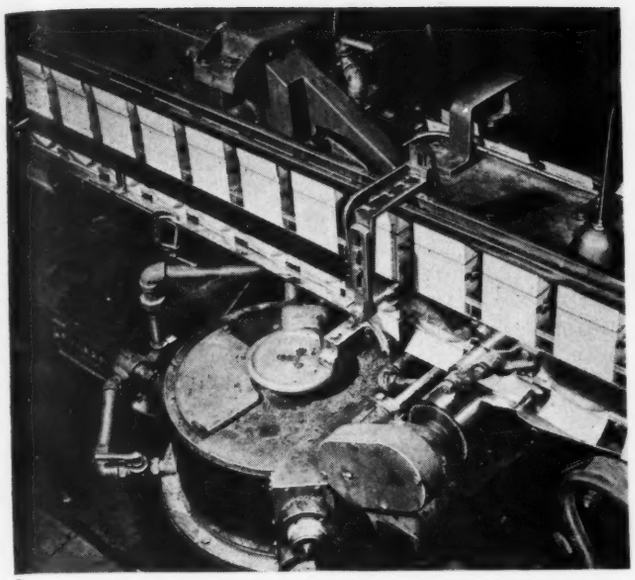
While the principle of this mechanized packaging is much the same as that of equipment previously used for other powdered foods, such as gelatin and pudding mixes, it includes a number of features which together add up to something unique in the field. The size of the container and the nature of the product required much heavier equipment throughout, and necessitated special devices at various points including the two filling stations with a shaking-down operation between.

One of the most interesting devices is the special suction folder (Fig. 7) which insures that the liner bag is held open at the bulk filling station so that no trace of the product gets in between the liner and the carton. This holder consists of a pair of rubber cups, vacuum operated, which seize the bag at each side and hold it during filling. This development was found necessary because if any of the product were to fall outside the heat-sealed bag it would make an unsightly and poor keeping package.

The special heat-sealing equipment was the result of joint experimentation by the manufacturers of the bags and the machinery. The bags, which are of laminated glassine with a 1 7/8-in. thermoplastic strip at the top, first pass through an electrically heated tunnel where temperature of 450 deg. F. softens the thermoplastic. Then compression belts press the tacky surfaces tightly together and hold them while they cool.

Another feature is a circulating glue system which pumps glue from a single electrically heated pot to two stations, one on each side of the packaging line. At the first station, near the head of the line, top flaps of the box are glued, and almost directly opposite is the station where bottom flaps are glued, and the package finally closed just before being discharged from the line. In each case, the glue is pumped up to rollers and the overflow goes back to the pot, keeping the adhesive constantly circulating at an even temperature. The large pot can be filled through a special opening without a shutdown.

The Hills Bros. Co. has been a pioneer in the re-use of



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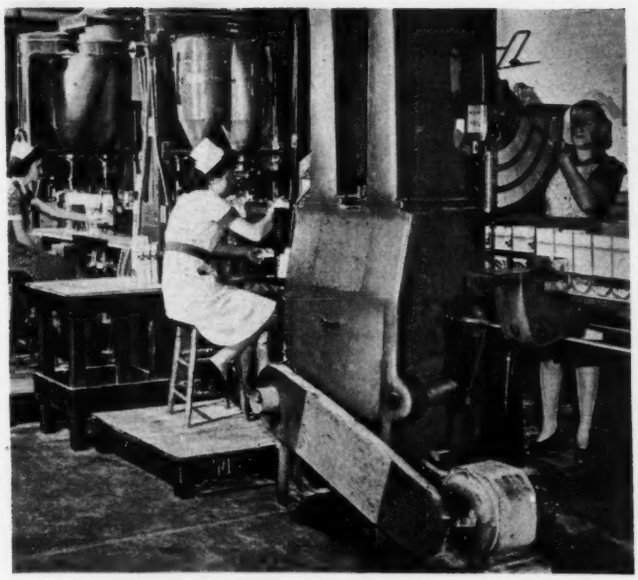

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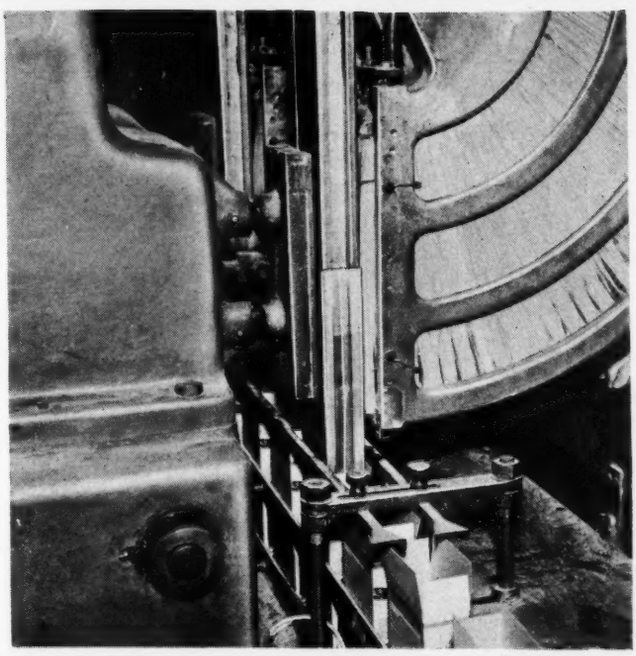

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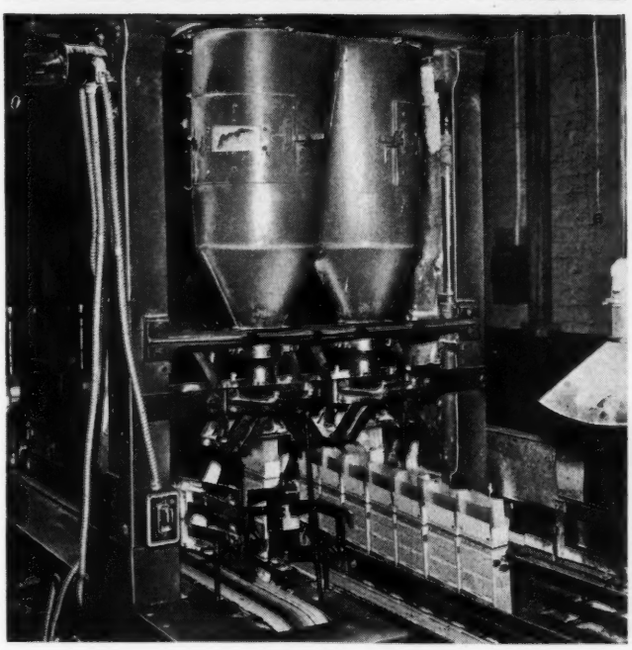

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***3**—Circulating glue pot forces electrically heated adhesive to two stations at opposite sides of line. One set of rollers in foreground coats carton flaps at bottom, which are then sealed; second gluing station, opposite, seals top flaps as carton returns along line after filling.* ***4**—General view of filling operations, showing first station, which gives approximate fill and second station, which dribble-fills to full weight. Girl at right is loading hopper of the bag inserter.* ***5**—Close-up of automatic bag inserter showing how plunger slips glassine bag into carton. Blast of air holds bag in place while plunger withdraws.* ***6**—At first filling station, ingenious suction heads, spring controlled, pull bag opening wide so the contents will not spill between bag and carton, and thus assure a neat-looking package.*

shipping containers. The gingerbread-mix cartons arrive from the manufacturers in bundles of 50, packed in corrugated boxes which hold 1,000 each. For the last year and a half, the plant has been knocking down the empty containers and returning them in lots of several thousand to the carton manufacturers. Some of these corrugated boxes have made four or five round trips and are still in good condition.

At the head of the packaging line, a girl worker cuts the string binding each bundle of 50 cartons and stacks the cartons in the automatic-feed magazine, at the end of which each carton passes under a knife-like blade which descends swiftly into the flat box, parts it and breaks the score line, makes a quick right-angle turn which opens up the carton squarely and passes it along to a vacuum holder. The holder conveys the box between two vertical rollers for a reverse fold and it is then set up on the packaging track.

As the carton moves along the first section of this track, its bottom flaps are pushed out with a fan-like motion, then inward, with finger-like devices, to pass over the glue roller. Guide rails at the top press on the cartons gently, to aid in the sealing operation. Then the cartons, which have become widely spaced during the sealing process, close ranks on a belt which moves them 12 ft. to bag-insertion station.

In preparation for bag insertion, a special device pushes each two cartons apart to travel in a special carrier operating

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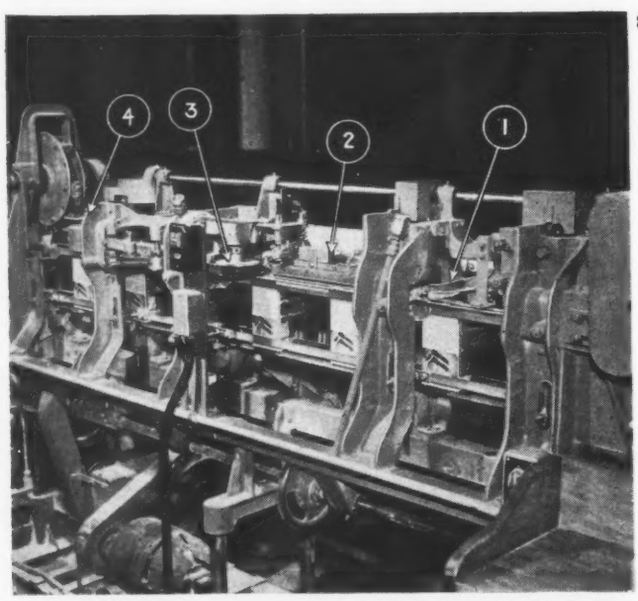

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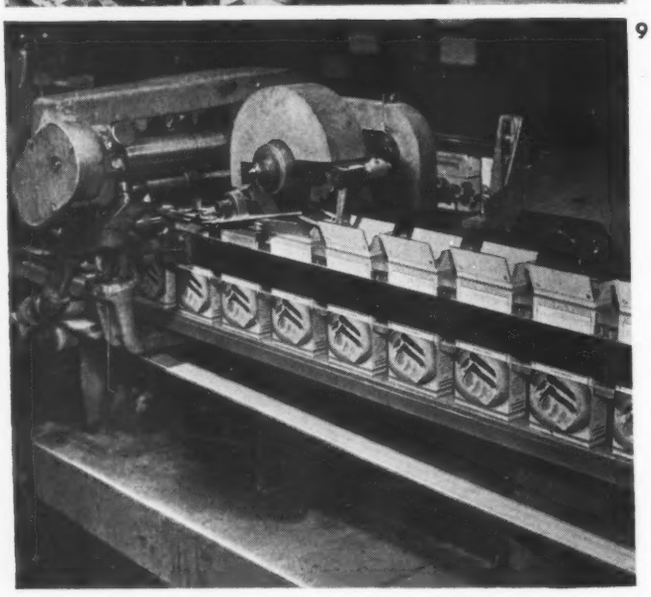

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in synchronization with the mechanical inserter. The vertical bag hopper is shaped like a quarter-wheel. One by one, bags are drawn off the bottom by suction, opened by an air blast and picked up by two metal plungers which simultaneously push the opened-out bags into two cartons passing on the track below. A blast of air from electrically operated hoses helps to hold the bags in the cartons as the plungers are withdrawn. This whole operation, of course, requires the closest synchronization.

The box-and-liner passes along the continuous belt to a girl operator who inspects each one and at the same time drops a paper recipe folder into the package between the liner and the box.

Prior to reaching the first of the two filling stations, the line of boxes is split into two lines to move under the twin filling spouts. An the auger-feeding mechanism leads from a large hopper of gingerbread mix on the floor above.

In this first volume filling, the box is filled in bulk but only to about $^{7}/_{8}$ of the desired weight because of the tendency of the fluffy material to pile. It is then necessary for the cartons to move along tracks over vibrators which shake the package sufficiently to settle the contents for final filling. The cartons, in their double line, then move under identical second filling stations where they are dribble-filled with an additional ounce or two—whatever is necessary to bring the package up to full $14^{1}/_{4}$ oz. net weight. Each package rests on a delicate scale which controls the auger-filling mechanism.

At this point the double-file movement ends and the cartons slow up in synchronization and fall back into single-track formation. They make a sharp u-turn at the end of the packaging machine, and move back on the other side of the machine where they eventually reach their starting point 60 feet away. At the u-turn end of the line there is a check-weighing station where a few packages are removed at intervals and hand-weighed as a check on the mechanism which controls the automatic fillers.

Around the u-turn, the cartons again pass over a vibrating mechanism which settles the contents below the filling line to facilitate the sealing of the bag. Each carton passes between two rollers set close enough together to iron out any bulges and square up the package.

At the heat-sealing station, the ends of the bag are tapped, guide rails seize the top folds, two rollers press them together, a blade folds the top over and the carton moves into the heating unit, which encompasses only the top, or heat-sealing portion, of the bag.

After heat-sealing, the bag is pushed well down in the carton to facilitate the final sealing of the carton itself. This is done automatically by an apparatus like a small ferris wheel, which drops a tamp down into each carton as it passes, pressing the bag below the score line of the carton.

Traveling through the top (*Continued on page 116*)

***7**—Close-up of vacuum device holding bag open for filling, showing cone-shaped rubber heads on each side which grip glassine by suction.* ***8**—Heat-sealing station, showing how top of the bag is folded over (1) before entering heated "tunnel" (2) where thermoplastic sealing strip is softened before being compressed by belts (3). Revolving device (4) then drops a tamp into each package to push sealed bag below the carton score line.* ***9**—Embossing wheel (right) codes flap of each carton as it passes. Top-sealer then spreads the carton flaps, applies a full surface of glue and closes the flaps.*

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Gluing paper closures

Among the many problems encountered in converting powdered products from metal to all-paper containers, none has been more troublesome than that of finding a proper technique for applying glue to the closure in such a way as to permit continued high-speed operation on existing filling machinery.

One firm, packaging denture adhesive powder in a round paperboard container with a slip-on, shoulder-type bottom closure, first tried the "little-finger technique," as shown in Fig. 1. A girl simply smeared glue around the inside rim with her little finger and stuck the closure on the container as it came from the filling machine. This method obviously left much to be desired, but it served to keep production going while engineers sought a better way. It required eight operators but kept production up to the standard 25 gross an hour.

The second method tried was a vast improvement. Engineers rigged up a plunger (Fig. 2) operated by a foot pedal, which dipped into a pot of glue. The operator simply twirled the closures around the glue-coated knob, slightly smaller than the inside diameter of the closure, to get an even application of the adhesive, and with her other hand applied the closures to the containers (*Continued on page 120*)

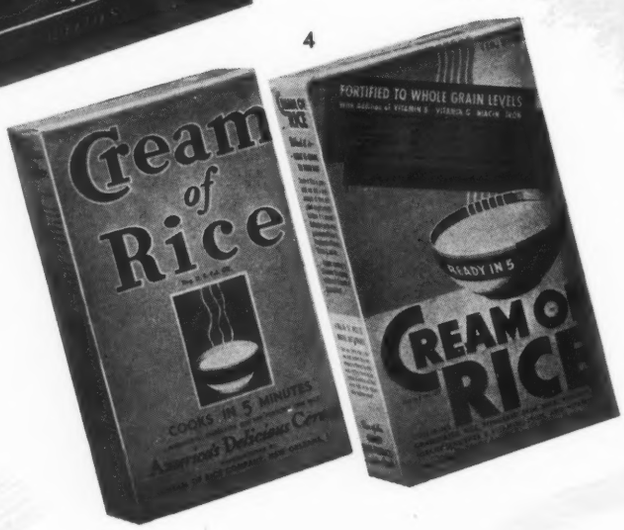
1—*Little-finger method, first tried.* 2—*An improvement was foot-operated plunger dipping into glue and rising for hand application.* 3—*In final method, empty cartons are fed into rollers which automatically grip carton, at center. Wheel rises to deposit thin band of cold casein glue near end while carton is revolved.* 4—*As containers leave filling machine, tops are quickly applied. Normally, 2 girls handle this operation.*

PACKAGING P

1 The actual impression of a girl's lips are unveiled on the folding carton of Manson Distributors' "Kiss and Tell" eau de cologne. Pink, red, black and white were the colors chosen to set off the script in which the name of the product is written. The bottle is an ordinary stock one but the large, chunky closure of "pickled pine" gives a custom look to this new cosmetic product. Design: Karl Peter Koch of Herbert Bielefeld, Chicago. Carton, Randolph Box & Label Co., Chicago. Bottle, Owens-Illinois Glass Co., Toledo. Closure, Middlewest Carving Shop.

2 Solon Palmer's compact new ascot air travel kit, in a small sleeve box contains talcum powder, shaving stick and after-shave lotion. The overall effect of this neat little package is one of lightness of weight and ease of packing. Of particular note is the natural wood container for the shaving stick. The compactness of the kit makes it an attractive acquisition for the "one bag" traveler. Box, Livingston & Co., New York. Bottle, Carr-Lowrey Glass Co., Baltimore. Shaving Stick Holder, Schutze Bros., New York. Talcum Box, Cross Paper Products Corp., New York. Labels, Harris-Drew Co., New York.

3 Two pickaninnies "sparking" on a park bench is the amusing appeal of the newly designed folding carton for "Licorice Sweeties." The colorful box is made in two sizes and is intended as an eye catcher when displayed on a candy counter with its competitors. Carton, Robert Gair Co., New York.



4 The newly designed tight wrap for "Cream of Rice" emphasizes the steaming bowl of cereal and the brand name more dramatically than did the old for supermarket merchandising. Modern lettering and stramlined art work make the new package more legible and yet the entire sales story is retained. In addition the homemaker can see by a glance at the chart printed boldly across the top of the package just what percentage of necessary vitamins and minerals her family gets from a serving of this cereal. Design, Jim Nash, New York. Wrap, National Color Printing Co., Inc., New York.

PAGEANT

5 "Stopzit," a product hitherto sold only to government agencies and large industrial concerns makes it public debut in a special fibre container with a metal top and bottom. The wrap around label tells the story of the product by showing a photo of a damp, leaky cellar which, it is said, can be made clean and dry with waterproof paint.

6 A boon to neat soldiers, sailors and marines is the Hanover Shine Kit which has "the works" packed into a white set-up box. The cover, patriotically red, white and blue, is decorated with the emblems of the three services. Inside the box is saddle soap, polish, buffer, polishing cloth, mud brush, shoe laces, shoe horn and a bag. Box, The McClintock Corp., Harrisburg, Pa.

7 Barbasol has packaged its familiar tubes of shaving cream in special cartons for the armed services. Across one face of the carton instead of the usual "Barbasol" there now appears "Barracks Special" or "Overseas Special." The point of these two packages is summed up on one of the panels of the new package which reads: "To men in service—Barbasol offers this regular 50¢ value for 10¢ (slightly higher abroad because of export packing) to express some measure of appreciation for your services." Cartons, American Coating Mills, Inc., Elkhardt, Ind.

8 A pin-up "high-boy" home dispensing unit which holds five cakes of "Ariderma" soap is Lightfoot-Schultz's latest merchandising trick. The little carton, is designed to look like a minature chest of drawers and when the die-cut perforated section at the bottom is torn open and a cake of soap taken out another drops down. Carton,Federal Carton Corp., New York.

9 "Vita-Yams," Gilbert C. Wilson Laboratories' latest food product, comes in two forms. The pulverized yam flour is packaged in a convolate fibre can with a yellow and orange label. The sliced sweet potatoes are packed in a printed cellophane bag which retains the color scheme and design of the carton and is topped with a stapled tab. Carton, Shellmar Products Co., Mt. Vernon, Ohio. Bag, Epsen Lithographing Co., Omaha, Neb.

The manufacturer of these typecuts has found that it pays to put them up in convenient and attractive package assortments. The purchaser gets more for his money and stock handling at the foundry is facilitated. Interesting innovations in these and other type packages have been made and problems solved.

Off-hand, it might seem that type is one product which could scarcely be put up in unit packages. Yet American Type Founders, Elizabeth, N. J., has found not only that it promotes sales to offer certain kinds of type in attractive packages, but that it simplifies handling and stocking problems and thereby cuts costs.

The company is constantly engaged in research and experimentation along this line and has developed some packaging methods and ideas which are unique in the field.

One of the earliest steps in the direction of improved packaging made by ATF was the assembling of sets of typecuts into what are called Handypacks, standardized in size and appearance. Until this practice was adopted in 1939, typecuts had been sold singly or from trays. From the buyer's angle, this had been a tiresome detail. From ATF's viewpoint, selling them had been a time-consuming and inconvenient procedure. Maintaining the stock, keeping it clean, finding the needed typecuts and wrapping them individually had seemed a particularly thankless task in view of the fact that printers often ordered only one or two typecuts at a time.

Typecuts are the bits of metal used to print the designs that break up printed matter (*Time* recently referred to them as dingbats). There are hundreds of designs available—for dots, parentheses, percentage marks and arrows; for flourishes, bows and wreaths; for flags, shields, stars, V-for Victory designs, civilian defense emblems, U. S. Service insignia and the dozens of other patriotic designs in demand today.

In deciding to bring out assortments of typecuts in Handypacks, ATF not only wanted to provide greater convenience in handling for both seller and purchaser, but also a sales advantage. Formerly, to buy a set of transportation cuts by the font, a purchaser had to spend $4 or $5. Now he can buy any one of six Handypack assortments according to his needs (automotive, aviation, miscellaneous, etc.) for the standard price of $1.65. He gets more for his money than under the old system and ATF can afford to give him more and still make a profit, because of the economy in handling.

The paperboard containers in which the Handypack assortments are packed measure 2 in. by $3\frac{1}{2}$ in. The top and ends are covered with a green-and-white label, which seals the container and "ties" the unit together into something approximating a package commonly expected of candy, stationery or other consumer goods.

The same kind of label is used for all the assortments with the words "Handypack" and "American Type Founders" in black letters running longitudinally across the top of the container. Differentiation between the Handypack assortments is achieved by numbering the packs with a rubber stamp. Customers order by number from catalogs or folders. Handypack 39, for instance, contains 166 solid and outline stars. Handypack 34 contains 23 one-color typecuts of the American Flag.

Since the typecuts vary in size and shape, there is wide variation in the number of items in the assortments. Establishing the pattern of arrangement for a new assortment sometimes requires jigsaw-puzzle manipulating. The idea, of course, is to put related typecuts together in an attractive pattern without wasting space in the package.

In this connection, ATF works out an interesting plan for Handypacks so that in many cases the box is completely filled with typecuts of many varying sizes and no space is wasted. Each typecut is accurately dimensioned in type

sizes, but the sizes in one package may vary from 6-point to 96-point. Thus, it has been found advisable to work out on a sheet of graph paper the packing plan for each package, showing exactly how the various pieces must be placed to fill the rectangle. As a further check on arrangement, a sample Handypack is assembled in a metal gauge and if it fits, the graph plan is released to the packaging department.

Typecuts also are sold as "sorts," which are one-of-a-kind assortments. These are packaged in bright red cardboard containers three inches long. They vary in thickness and their prices also vary, some as low as 35 cents a package.

Both the green Handypack label and the red "sorts" package were designed by Gerry Powell, ATF's typographic director. Mr. Powell has charge of modernizing the company's type faces, a procedure that is never completed because of the large variety produced. Only a small fraction of ATF's typecuts have thus far been put up in Handypack form, but the line is being steadily expanded to include new assortments.

The sales force likes Handypacks. The small package can be carried easily and it serves as a good opener in talking to a prospect. The sealed label suggests freshness—an asset in selling type as it is in selling cake or cheese.

The actual packaging of typecuts presents a number of special problems. The management is receptive to the idea of packaging by machine, but this does not seem to be practicable. Type which has just been cast comes off the machine in rows. A machine casts only one size at a time. A Handypack assortment might be made up of percentage marks or price marks of several different sizes; these would come off different galleys. For this reason it appears that girls will continue to assemble the Handypack assortments simply by picking the type off galleys and placing it in cardboard containers.

The Handypack cartons themselves have gone through a process of evolution. At first they were reinforced at the corners with metal, then with wire staples. Even before the war created a shortage of wire staples, the company experimented with methods of attaining necessary strength without staples. The present method of using only paper-tape reinforcement at the corners was tested by shipping and reshipping the Handypacks all over the country.

Typecuts are used in printing labels and package inserts,

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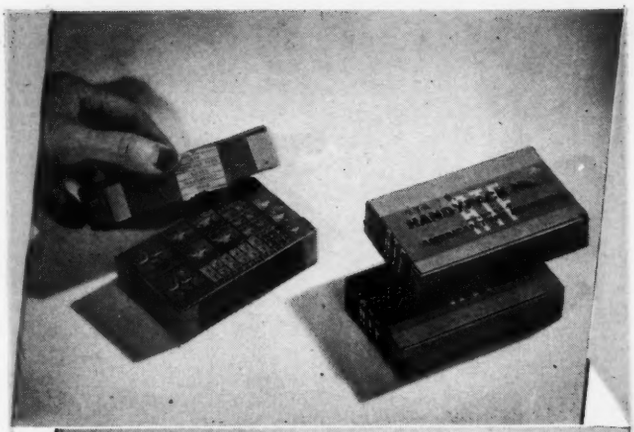

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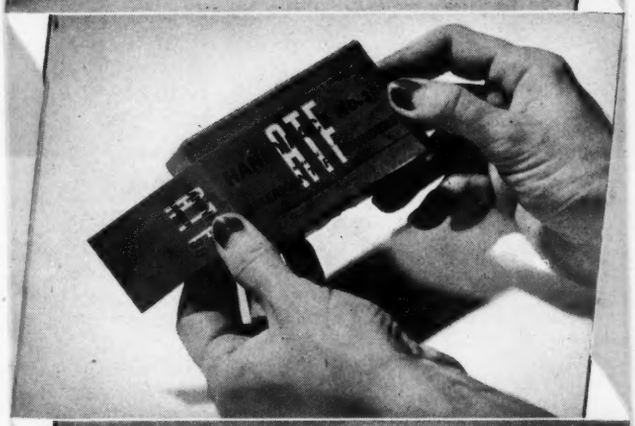

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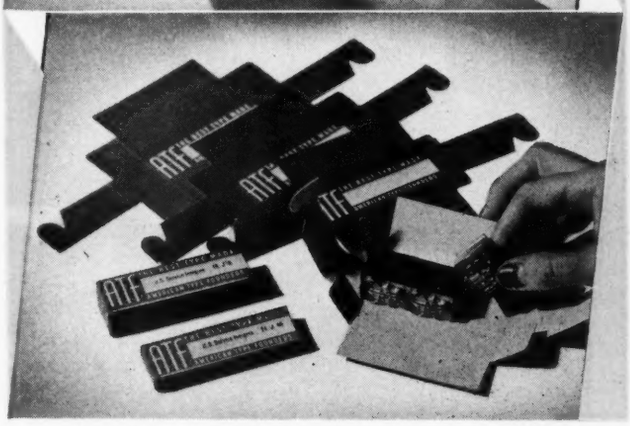

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1—A typical Handypack assortment in the box with paper-taped corners now used. Two earlier types of boxes with metal-reinforced corners are shown. **2**—*Package is sealed with gummed paper tape, which also provides attractive label. Stock number is rubber-stamped.* **3**—*"Sorts" package forms another attractive but inexpensive way of selling typecuts.* **4**—*"Setting up" is first step in fonting. After pulling down horizontal row containing all characters girl sets up additional fonts.*

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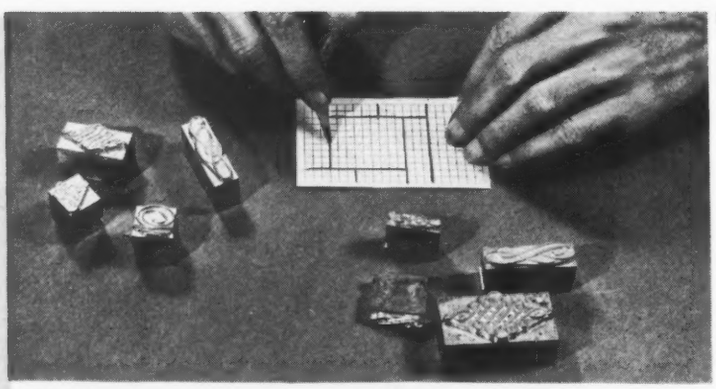

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5—*After fonting, type is given a final gauge check to assure accuracy of height, body, set width and alignment.* **6**—*Type is "taken off" in 6-in. lines and placed on a galley. Successive lines make up the font, which is tied between thin strips of wood called reglet.* **7**—*The font is packaged in a folding lock carton, sealed and labeled.*

8—*In order to fit the various sizes of typefaces into the smallest size package possible the arrangement of each Handypack variety is carefully plotted on a special graphic layout sheet to provide a pattern before the boxing is started.*

9—*After plotting the pattern a sample of each of the Handypack assortments is assembled in a gauge the same size and shape as the box for which it is intended. This eliminates any possibility of error in the final packing of the arrangement.*

10—*Although ATF would much rather pack by machine it is not practical because many of the combinations are of different sizes. Therefore, Handypacks are boxed by girls who fill rows of cartons according to the predetermined scheme. Due to careful planning there is usually no waste space in the box and the type fits tightly.*

and even on packages themselves. Drug firms, for example, use the designs in Handypack 44 (medical signs) on their labels. Such devices as the skull-and-crossbones and the mortar-and-pestle are favorites. Manufacturers who design their own packages and layout men who produce labels by letterpress also use typecuts. Though typecuts are most often used to make designs on paper or cardboard, they are also used on wood and (with the addition of heat) even on metal.

Another packaging innovation introduced by ATF in 1939 was that of standardizing by weight rather than by font scheme, which had been the practice for many years. In the printing world, a font scheme is an assemblage of type arranged according to frequency of use of the various letters it comprises. Under the old system, the variation in the size of the characters resulted in fonts of varying weights. Since type is priced on the basis of weight, there was considerable variation in the price of any given size. This was hard on the customer, the salesman and the company.

Under the new arrangement, all type faces of any one size are fonted (or packaged) to a standard weight (except very narrow faces and exceptionally wide ones). This simplifies pricing.

Since the changing of font schemes is a major undertaking, it will be several years before the entire line of type faces is repackaged to the new standards.

Like the Handypacks, type sold in the standardized schemes must be assembled and packed by hand. Girls in the department, using sticks of wood six inches long, pick the type and put it into galleys or trays in units of six inches. The first step is laying out the type according to the standard font schemes. The second step is the final inspection of the type to make sure that the dimensions and alignment are right. The completed assortment is then tied together with string and placed in its container. Formerly, small blocks of wood were used to fill out any shortage in the last line. It was found, however, that it was less expensive to the company to use extra type for the purpose and this is the practice now followed.

Type is shipped to many parts of the world and like other metal products it must be protected against corrosion. For its Handypacks, ATF uses a simple lock-type folding carton made of laminated sheets of kraft and news stock with an asphalt paper between.

The company employs the standard method of packing the troublesome "short" type for multigraph machines, but it has an ingenious slip-cover package.

Font schemes of multigraph type are set up by running the type off the channeled "stick" (*Continued on page 120*)

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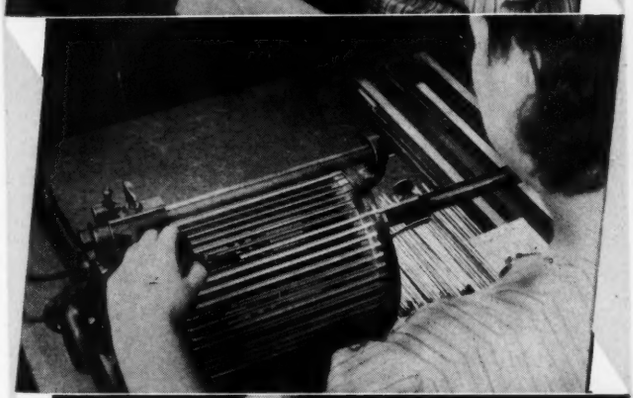

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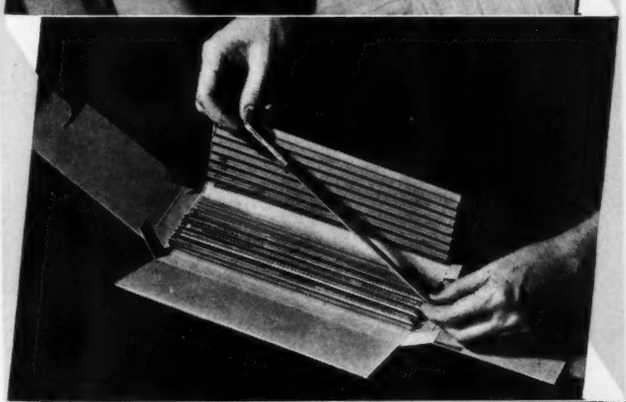

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11—Short type for multigraph is run off slotted "stick" onto channeled drum of specially designed fonting device. Movable band encircling drum is set to permit addition of proper number of characters, which are pushed on from stick at right. Pressing lever at left brings next channel into line with stick. 12—After channels on drum are filled to proper length, process is reversed and short type is run out into slotted steel tube and held in place by spring slip. 13—Tubes are laid between two sheets of corrugated in folding lock-type carton. 14—Plain inner cartons, with contents identified on end, are slipped into sleeve-type casings bearing brand identities of two distributors. This simplifies stocking.

Display

1 State of Maine potatoes are again using "Young Spud" in their display unit for the fifth year. This year the lithographed figure of the freckle faced young salesman ties State of Maine potatoes in with the War Food Administration's emphasis on food for victory. The lithographed cutout is practically life-sized, standing 42 in. high, 32 in. wide and 14 in. deep. It is done in nine colors and the focal center is Uncle Sam's large hat full of potatoes reproduced from actual color photographs. Display, Einson-Freeman Co., New York.

2 Postwar planners of candy merchandising have gone far ahead of the planning stage according to Stephen F. Whitman & Son, Inc. Hundreds of dealers have already placed their orders for this new refrigerated candy display unit for delivery after the war. Not only will a unit of this type protect the product, says L. L. McIlhenney, president of the company, but it will act as a psychological salesman by attracting attention and promoting sales. This unit will make unnecessary most of the selling which now has to be done by the clerk. It silently carries the messages "fresh," "fine," "sanitary." In commenting on the Refrigerated Candy Cabinet Mr. McIlhenney said, "Over 1200 dealers have proved that the installation of a modern refrigerator will increase candy sales 50 per cent to 350 per cent or more. After selling a box of candy a dealer has a feeling of confidence when he can say, 'There goes a satisfied customer.'"

3 A shortage of lipsticks was the necessity which forced the invention of this lipstick bar for Helena Rubenstein. Formerly a goodly number of lipsticks were ruined for sale when customers insisted upon testing the color on the backs of their hands. Now this attractive counter piece keeps the name of the product prominently displayed on the counter while the customer can test all six colors to her hearts content without damage to saleable stock. The display is made of wood and painted an attractive off-white with the brand name in red. The little keys which are depressed to bring the lipstick forward, as well as the container which holds the lipstick, are colored a rich gold

3 (*Page 82*)

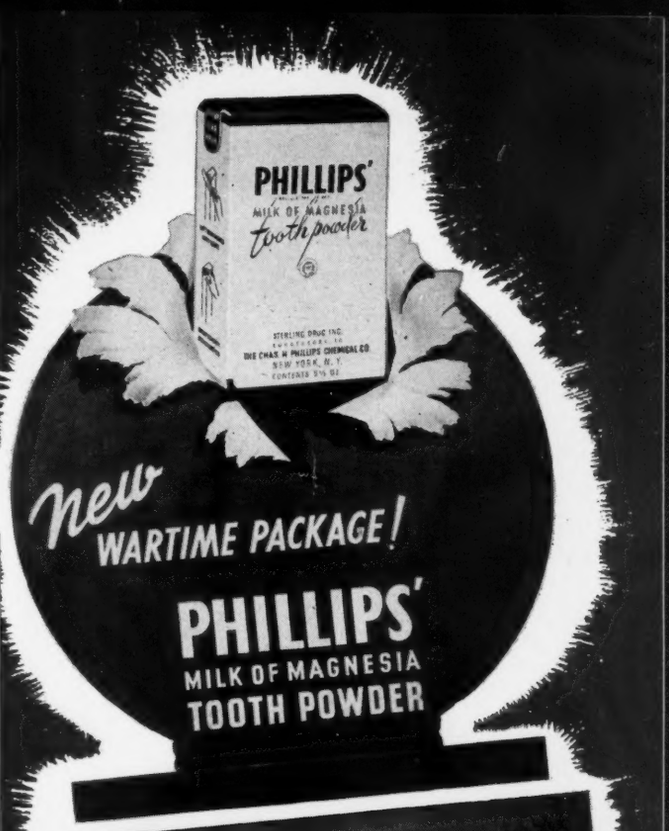
Gallery

Behind and under each lipstick unit is a small invisible counter weight which pulls the lipstick back into its cubbyhole after the prospective customer is through trying it. Smudging is prevented since the keys and containers are so arranged that the lipstick cannot touch the display case. Created by H. Freeman, New York.

4 The new wartime package for Phillips' Milk of Magnesia Tooth Powder is placed in so prominent a position on this vivid counter cutout that consumers will recognize the product immediately. The color scheme of the small card is patriotically red, white and blue with the new package illustrated clearly enough so that the dispensing top and the directions for opening and reclosing it can be seen readily. The company feels that with displays like this it won't be too hard to acquaint the public with its new package. Display, Forbes Lithograph Co., Boston.

5 Gales counter card appeals to tradition-loving Americans with the slogan "once a week give her Gales—its a grand American custom." The lithographed card carries out the old American theme with its border of spirit of '76 figures and the reproduction of the early American beau gifting his gal with Gales Candy—'way back when. Display: United States Printing & Lithograph Co., Cincinnati, Ohio.

6 & 7 The WPB restriction on dummy cartons hasn't stopped Ex-Lax, Inc., from devising effective counter displays for "Jests" and "Ex-Lax." One glance at the photograph shows that the new display cards give the third dimensional effect of the package while staying strictly within regulations. The large reproduction of the "Jests" package on the counter card is a cutout and achieves the third dimensional effect by being pulled forward while the smaller illustrations at each side stay in the background. In the Ex-Lax display the center square at the bottom of the card is the portion which sets forward from the main display and shadows make the packages stand out in relief. Displays: Kindred, MacLean & Co., Inc., New York.



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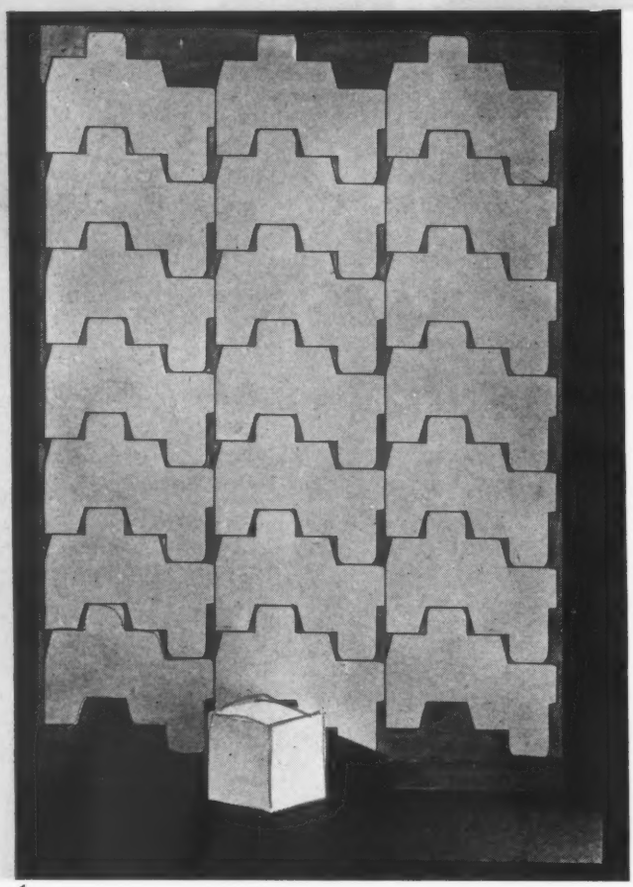
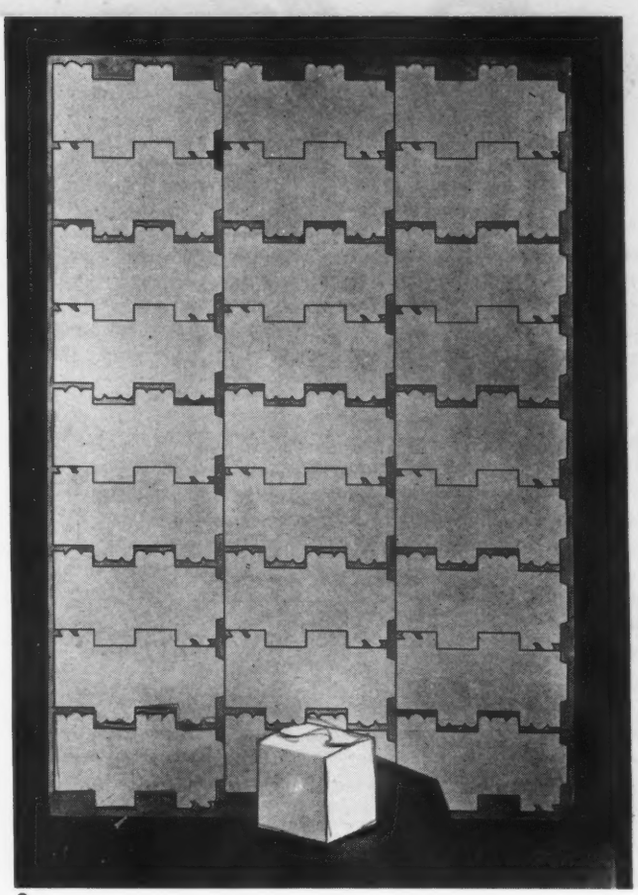


1

1—Only 21 reverse-tuck cartons can be cut from the standard layout shown here.



2

2—The new Paige layout yields 27 snap-lock boxes from the same amount of board.

A key to boxboard economy is in the locks

A packaging engineer offers his inventions without royalty to help relieve the paper shortage.

by Richard E. Paige*

The present shortage of paper and cardboard is becoming progressively worse. What can we do to relieve it?

My answer is this: tap the hidden board supply—the board that is unnecessarily consumed and wasted by old-fashioned locks and closures on boxes.

Government orders have already cut down and even cut out many users of boxboard. Some users of boxes are getting their full supply simply because they pack food and other products on the "preferred" list. But they would doubtless be glad to make economies in the use of board if they could be shown how to do it without damage to their products or the appearance of their packages.

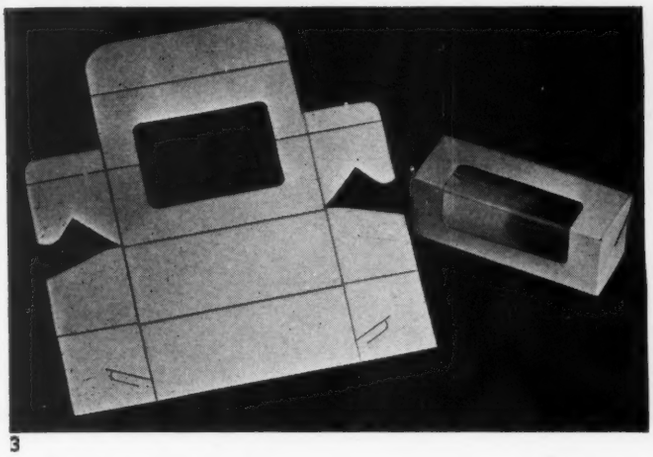
Looking at this situation from the altruistic angle, one might say that it is neither patriotic nor sporting for one user of board to "hog" all he can get without regard for the ultimate board supply or the commercial welfare of his fellow business men. On the selfish side, changes can be made in the direction of economy as suggested here so that the user can protect the future of his own supply and reap the advantage of lower costs at the same time.

I propose to show, in this article, how a large amount of boxboard may be saved with absolutely no manufacturing inconvenience, practically no changes in the appearance of the boxes and with a substantial saving in money.

The designs shown here are the inventions of Richard E. Paige, Inc., and are herewith made public property to be used without royalty payment of any kind. The purpose of this contribution is to relieve a shortage which is affecting many of the clients served by this company and to benefit all who use cartons by making possible the manufacture and availability of a greater number of cartons out of the restricted board allotments.

One box most widely used is the reverse-tuck carton, Fig. 1. Whether this box is used for tobacco, shaving cream or medications, the principle is the same. It is composed of locked side flaps on the bottom so that the contents will not fall out when the box is picked up, a regular tuck flap over these

* Packaging and Merchandising Consultant.



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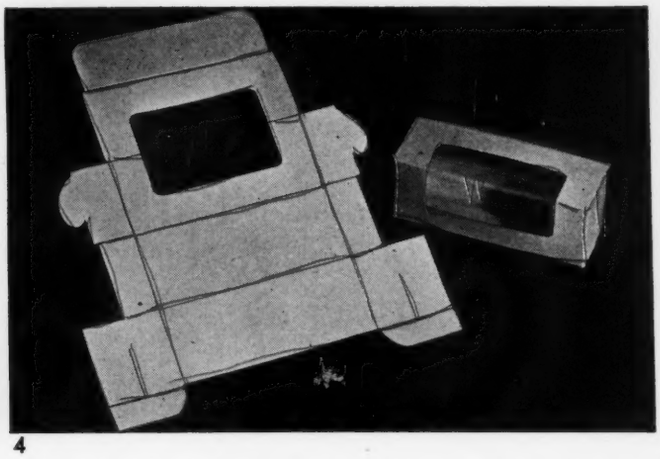
3—The Peters-lock box for food and baked goods requires a full side overlapping a full side to achieve a secure lock.



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4—The lock of the Paige box meets in the center permitting interlocking-on-a-sheet for greater economy.

locked sides, and a standard tucked-in top with two underflaps off the sides. Any box manufacturer will defy you to improve his layout for economy, and you can't do it—on THAT box.

But why not use the snap-lock carton shown in Fig. 2? You can scarcely tell the difference in appearance, but you certainly can tell the difference in board consumption and price. In the case of this lock-type box, Fig. 2, the extent of your economy depends on how nearly your box approaches a cube in shape. A truly cube-shaped box, having all sides the same size, saves about 25 per cent of the board you would use for a reverse-tuck carton. In addition, because the layout is so economical, the manufacturer gets so many more of these on a sheet that he prints 25 per cent more boxes at each turn of the press and he also die-cuts 25 per cent more boxes with each impression. The snap-lock box in Fig. 2 is just as strong as the reverse-tuck carton, will do as good a job in every way and will set up as easily. (The bottom set-up requires a simple knack which is mastered by the time half a dozen boxes are set up and from then on it equals the reverse-tuck box in setting up time.) Being able to produce 1,250 cartons from the same tonnage formerly used for 1,000 cartons is like finding an additional source of board.

By taking advantage of these new constructions, the user of reverse-tuck cartons could satisfy his full box requirements, even if Government regulation were to cut down his tonnage by 25 per cent. Behind each box you will find an accurate sheet layout, made half size for convenience. This layout shows the interlocking of the boxes and thereby illustrates why there is a saving in the design.

In the case of all boxes shown in this article, the operation of stripping has been duly considered. There are no parts which hook into each other or which require any delicate work in separation. It should not be said that the boxes "interlock" on a sheet. They really abutt one another but remain free for stripping purposes.

A bakery and food box used by the tens of millions is the Peters-lock box. This box, when used for doughnuts, muffins, cake, etc., requires, the type of construction shown in Fig. 3. But look at the box in Fig. 4. Can you tell the difference? The consumer can't. The production man in charge of the packing line will see no difference in timing. Look at that layout! Compare Fig. 3, the Peters layout, with Fig. 4, the substitute layout.

Peters type boxes (Fig. 3) use a lock that requires a full side overlapping a full side. The lock of the improved box (Fig. 4) meets in the center; this permits an interlocking-on-a-sheet that would be impossible to achieve with the Peters box. Notice that the flaps which lie under each side of the cover (see illustration of the box that is set up in Fig. 4) come from the end of the carton and the side flaps interlock with the cover of the box next to it. Furthermore, the new boxes were designed to interlock economically when reversed alternately on the sheet. This advantage is lost in the Peters

5—Arthur-lock box requires a flap off the front cover the full height of the box to gain the necessary strength.

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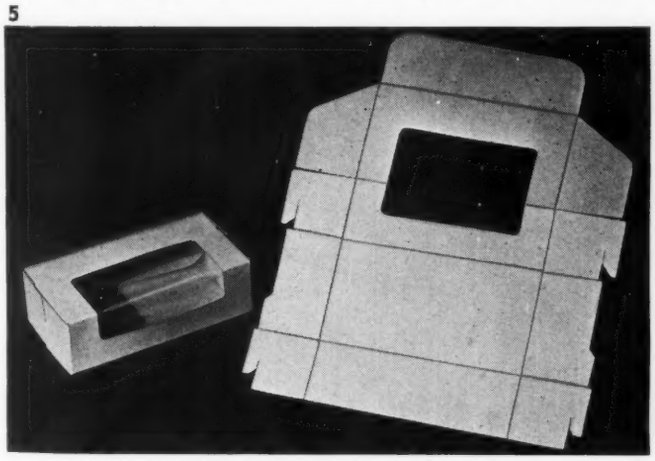

6—New box design with "trick" cover-closing method gives up to 100 extra boxes per 1000 on 44 by 64 layout.

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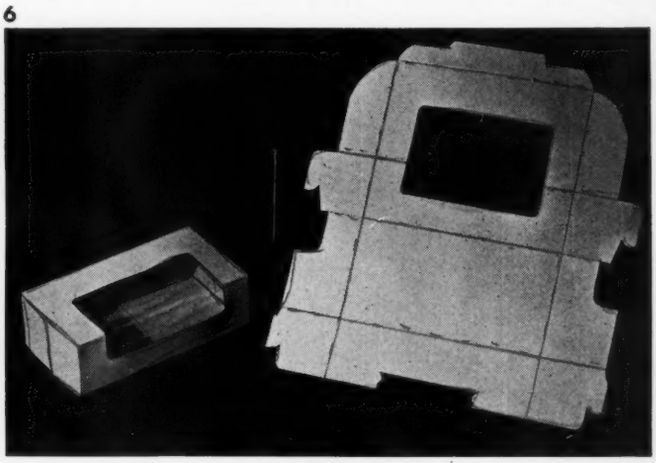

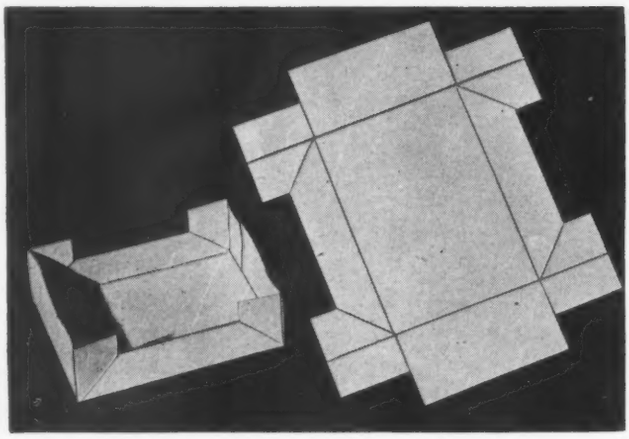

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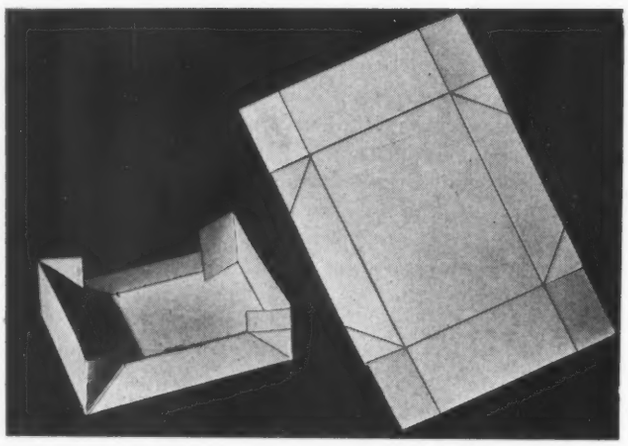

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box because in the flat blank the side flaps are on each side of the cover and prevent the economy of a good interlocking.

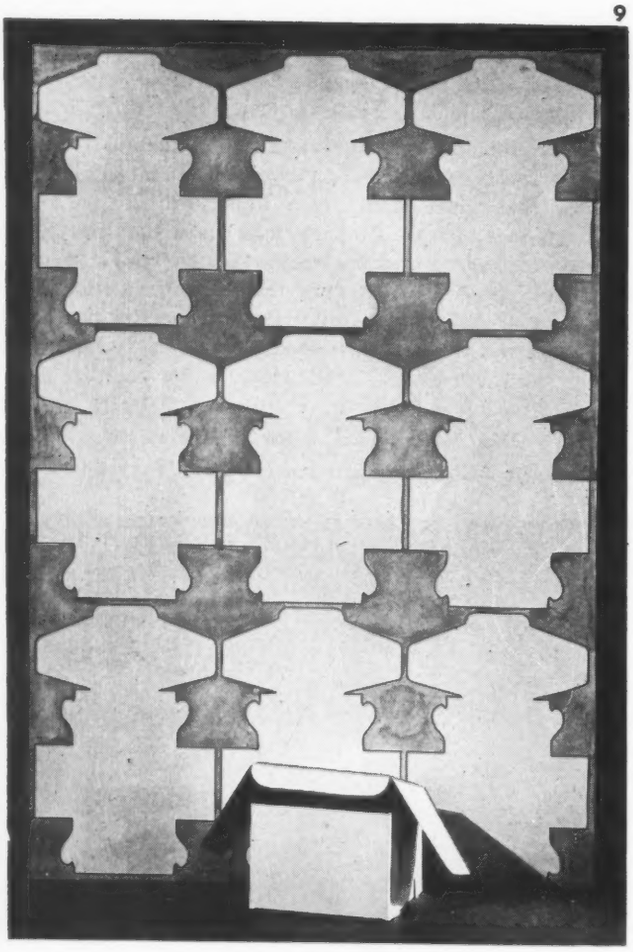
Those who print boxes in different colors at the same time (split fountain process) should note that while the improved boxes interlock in the die-cutting, the printing plates do not interlock. This means that square, easy-to-arrange plates are used and they allow a blank stripe ($1\frac{3}{4}$ to 2 in. wide) that runs across the short way of the sheet for the color separation.

In a standard half-dozen doughnut box, an approximate comparison of the layout for the old and new boxes is as follows:

On a 41 by 54 press size
—12 Peters boxes on a 38 by 50 sheet
—12 Paige boxes on a 33 by 52 sheet
On a 44 by 64 press size
—15 Peters boxes on a 37 by 63 sheet
—20 Paige boxes on a 43 by 63 sheet

This demonstrates a saving of approximately 15,000 sq. in of board on every thousand boxes when run on a small layout or 20,000 sq. in. per thousand boxes on the large layout (plus a saving of 25 per cent in printing and die-cutting time, due to the fact that the Peters box allows only 15 on a large sheet while the improved box can get 20, thereby taking advantage of extra running time). Stated another way, the economy will sound even more impressive if you realize that in the smaller press size you can get 1,100 of (*Continued on page 118*)

***7**—Layout and box of common tray.* ***8**—New design saves 25 per cent of board material.* ***9**—Standard bakery box with layout.* ***10**—Replacement box showing great saving.*



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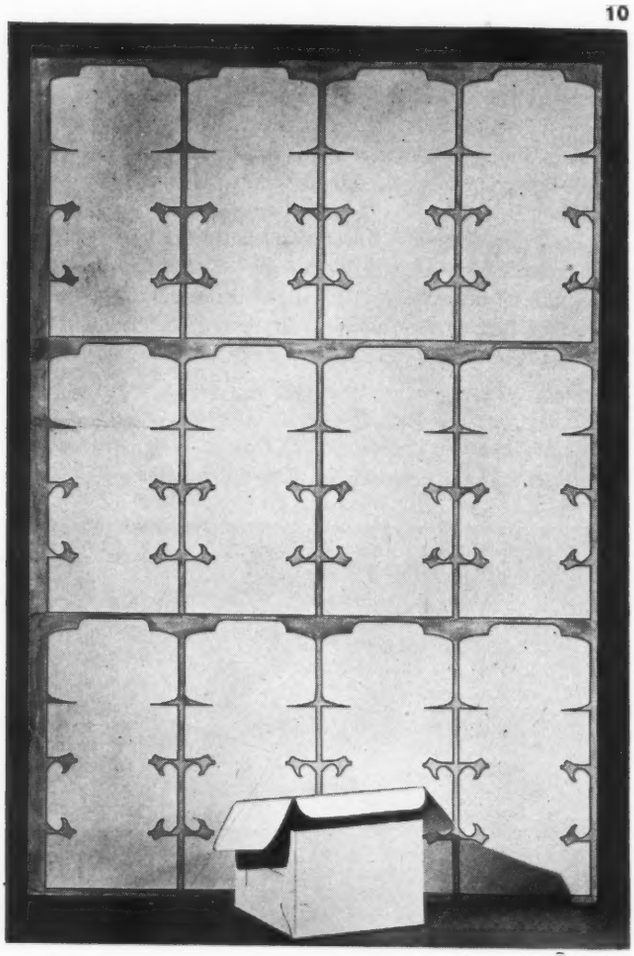

10

Alien patents dealing with packaging

by Harold A. Levey

There are now available to the American public a group of some 42,000 patents held by the Alien Property Custodian and available for public use on payment to the U. S. Government of $15.00 for use during the remainder of the patent without payment of any other fees, this being a non-exclusive licensing agreement. Copies of these U. S. patents may be purchased by sending 10 cents in coin to the Division of Publications, U. S. Patent Office, Washington 4, D. C.

These patents are arranged in numerical sequence, and have all been issued within the past ten years. The following abstracts, divided into three parts, cover patents from this group dealing with various packaging materials both fabricated and unfabricated and also packaging equipment and machinery.

Since 1927 Mr. Levey has been a consultant in chemical engineering and is a Senior Fellow of the American Institute of Chemical Engineers. During World War I he was in charge of airplane lacquers for the Bureau of Aircraft production. At present he is president of the American Products Mfg. Co. and of the Inceloid Co.

For nearly three years, he has edited the U. S. Patent Digest Department of MODERN PACKAGING. His many years in the technical field give him a wide knowledge of patents and patent procedure.

Packaging materials, unfabricated

DRAWING APPARATUS WITH PIVOTALLY MOVABLE LIPS FOR THE MANUFACTURE OF CELLULOSE FILMS OF VARIOUS THICKNESSES. A. Maurer, Milan, Italy. U. S. 1,885,747, Nov. 1, 1932. In a drawing apparatus for the manufacture of cellulose films, a cylindrically shaped pipe, two cooperating walls associated with said pipe forming a slot, at least one of said walls being rotatable on said pipe whereby the thickness of said slot may be adjusted.

PRODUCTION OF FOILS AND APPARATUS. H. Jacque (to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany). U. S. 1,894,467, Jan. 17, 1933. Apparatus for the production of foils from liquefied film-forming substances comprising a pair of endless belts, with sets of pulleys for supporting belts, and means for supplying said liquefied substance to said belts and the converging end thereof.

PRODUCTION OF FOILS. O. Schmidt (to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany). U. S. 1,901,045, Mar. 14, 1933. The process for the production of thin artificial masses which comprises warming a soft foil of a non-distillable synthetic polymerization product of a diolefine, which is free from sulphur, in the presence of oxygen.

INDELIBLE INK. H. Beckmann, Berlin-Zehlendorf, Germany. U. S. 1,930,301, Oct. 10, 1933. A water-proof indelible ink in combination with and absorbed in the pores of a cured, colloidal rubber article of reticulate structure having microscopically visible, filter-size pores, the said combination being substantially indelible and weatherproof.

DEVICE FOR TYING PACKAGES. L. Koczi, Vienna, Austria. U. S. 1,959,720, May 22, 1934. A device for the knotless tying up of parcels, packages, mail matter and the like, comprising a base plate, a thumb-aperture in said plate, a clamping-disk fixedly and rigidly mounted upon and in spaced relation to said plate, a hole being in said disk and a tying cord adapted to be fastened by one end in said hole.

INK PHIAL OR FILLER. T. Kovacs (to G. Wagner, Hanover, Germany). U. S. 1,959,959, May 22, 1934. Non-refillable bottle for inks consisting of a section of cylindrical tube made of a rigid material, a stopper tightly and securely forced into one end of the tube sections, a nozzle tube made of somewhat elastic material secured in the stopper, a needle fitting tightly fits into the nozzle tube and a pressure cap is tightly seated in the other end of the tube section and completely enclosed by the tube.

MANUFACTURING FLAT-WALLED OR SHEET-LIKE CELLULOSE PRODUCTS. R. Weingand, Bomlitz, Germany. U. S. 1,961,316, June 5, 1934. A process for the production of foils and sheets from aqueous solutions of cellulose more particularly of viscose.

MANUFACTURE OF RIBBONS. R. Hofstadt (to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany). U. S. 2,000,388, May 7, 1935. A nozzle for the manufacture of ribbons provided with patterns, and a ribbon consisting of cellulose hydrate provided with patterns having a stripe-like appearance, said patterns constituting a superimposed portion of the material of the ribbon integral therewith.

CUPRAMMONIUM CELLULOSE FILM. R. Etzkorn & E. Knehe (to I. P. Bemberg Aktiengesellschaft, Wuppertal-Oberbarmen, Germany). U. S. 2,035,645, March 31, 1936. Absolutely transparent cellulose hydrate foil substantially equally smooth on both sides and manufactured from copper oxide ammonium solution and having a weight per square meter of less than 5 grams.

METHOD OF PRODUCING CELLULOSIC FILMS. R. Etzkorn & E. Knehe (to I. P. Bemberg Aktiengesellschaft, Wuppertal-Oberbarmen, Germany). U. S. 2,067,522, Jan. 12, 1937. A process for the production of fine foils consisting of regenerated cellulose, comprising the steps of squirting a cuprammonium cellulose solution through a narrow slit, conducting the film so formed under tension through a free stretch of air of 10 mm. at the most wherein both sides of the film are exposed to the atmosphere before running the film through a diluted soda lye bath, for coagulation.

MANUFACTURE OF FLEXIBLE BANDS, THREADS, FOILS AND TUBES OF ARTIFICIAL SUBSTANCES. E. Studt & U. Meyer (to Norddeutsche Seekabelwerke A. G., Nordenham, Germany). U. S. 2,074,285, Mar. 16. A method of manufacturing flexible bands, tubes and thread of polystyrol and polymerization products of aryl olefines.

CAP FOR TUBES, CONTAINERS OR THE LIKE. W. Luckel, Hagen, Germany. U. S. 2,173,787, Sept. 19, 1939. A cap for collapsible tubes provided with externally screw threaded

nozzles, a cylindrical hollow body having an internal screw engageable on the nozzle of the collapsible tube, a lid is provided and adapted to close over the top of said body and provided with an arm extending between the ears and stub of axles projecting from said arm at the end thereof and engaging in the grooves.

PROCESS FOR THE MANUFACTURE OF TRANSPARENT FOILS, FILMS AND THREADS OF CELLULOSE FORMATE. W. Konig (to Rudolph Koepp & Co., Chemische Fabrik, A. G. Oestrich, Germany). U. S. 2,203,596, June 4, 1940. A process for the manufacture of transparent foils, films and threads of cellulose formate which comprises the steps of preshaping primary formulated cellulose reaction products which contain formic acid.

CLOSURE FOR TUBES. K. Totschnig, Berlin, Germany. U. S. 2,253,738, Aug. 26, 1941. A closure for tubes comprising a tubular body carried by a tube and formed at its outer face with a valve seat, a valve body in the form of a cap embracing the outer portion of said tubular body and formed with an axial opening and bearing on said seat.

AUTOMATIC CLOSURE FOR COLLAPSIBLE TUBES. B. Feldmar, Budapest, Hungary. U. S. 2,270,794, Jan. 20, 1942. A collapsible tube having a discharge head with a dispensing mouth, and interiorly of said tube and in proximity of said mouth a dispensing valve control device which has a rigid dish-shaped support with apertures in its border, a seat upon the inside wall of said tube for seating said dish-shaped support, and is equipped with a valve stem for controlling said dispensing mouth.

PROCESS AND APPARATUS FOR THE PRODUCTION OF AN EXTREMELY THIN FILM OF CELLULOSE ESTER OR THE LIKE. A. Fischl, Dresden, Germany. U. S. 2,272,662, Feb. 10, 1942. A process for the production of thin films of cellulose esters or the like comprising applying a thin solution of a cellulose ester upon a smooth support which is insensitive to the solvent of said solution.

Packages, fabricated

TUBE-LIKE CONTAINER FOR CIGARS. C. W. Muller, Dresden-Weisser Hirsch, Germany. U. S. 1,886,115, Nov. 1, 1932. A tube-like container for cigars, whose ends are flattened and pressed together without folding.

CARTON. C. W. Hartmann, Lyngby, near Copenhagen, Denmark. U. S. 1,907,067, May 2, 1933. A cardboard carton formed with a corner dispensing opening.

HERMETIC SEAL FOR BOTTLES. C. Ohta, Kita-Ku, Osaka, Japan. U. S. 1,941,712, Jan. 2, 1934. A bottle closure having mouths with outwardly projecting lips, consisting of a cap-shaped metal structure, and by means of compression in securing to bottle forms a hermetic seal.

HERMETIC SEAL FOR BOTTLES. N. Ito, I-Cho, M-Gun, H-Ken (to Chisada Ohta, Kita-Ku, Osaka, Japan). U. S. 1,942,102, Jan. 2, 1934. A closure for bottles having an annular groove in the neck below the mouth, consisting of a cap shaped metal structure adapted to seat in mouth of bottle.

OPENING AND CLOSING MEANS FOR CARTON BOXES. C. W. Hartmann, Lyngby by Copenhagen, Denmark. U. S. 1,943,796, Jan. 16, 1934. A carton body having a weakened portion enabling the carton to be separated into main and lid parts, with loose inner lining in said body portion.

CIGARETTE PACKAGE. R. Blum, Berlin, Germany. U. S. 1,943,810, Jan. 16, 1934. A cigarette packaging composed of inner wrapper and an outer casing with upper portions folded down over contents of package.

ENVELOPE. M. Vogel, Frankfort-on-the-Main, Germany. U. S. 1,944,020, Jan. 16, 1934. An envelope with front and back portions with a pair of closing flaps foldable relatively to said front and back portions, with adhesive substance on two surfaces which adhere upon contact of one with the other.

CIGARETTE CARTON. C. W. Muller, Dresden-Weisser Hirsch, Germany. U. S. 1,950,740, March 13, 1934. A carton to receive two superimposed layers of cigarettes, made of a base portion including a bottom panel, walls upstanding with a neck, and lid having a rim engageable with said neck.

PAPER BAG. T. Hayashi, Asakusa-Ku, Tokyo, Japan. U. S. 1,968,487, July 31, 1934. A multiply bag composed of a plurality of walls of paper, nested in relation one to the other.

NONREFILLABLE BOTTLE. R. Gunzel, Hamburg, Germany. U. S. 1,978,304, Oct. 23, 1934. A non-refillable bottle including a body having a neck and a valve seat formed at the inner end of the neck.

MATCH CASE. M. Vogel, Frankfort-on-the-Main, Germany. U. S. 1,985,751, Dec. 25, 1934. A match case of book matches including pocket at lower end, and having striking surface exposing aperture therein.

BAG AND METHOD OF MAKING SAME. A. Andreas (to Verpackungsbedarf G. m. b. H. Crefeld, Germany). U. S. 1,989,304, Jan. 29, 1935. A bag comprising a plurality of paper layers, the body of the bag having the form of a tube and the end of the body being crossed to provide a pair of crossed overlapping flaps.

FOLDING BOX. Freiberg in Saxony, Germany. U. S. 2,006,678, July 2, 1935. A cross-sectionally rectangular match box comprising a back and flaps connected to opposite sides of the back and foldable angularly with respect thereto toward and from each other.

COLLAPSIBLE, AUTOMATIC ERECTION EGG BOX. G. A. H. Nuyts, Nanterre, France. U. S. 2,010,437, Aug. 6, 1935. A folding egg box including a central partition, and with interlocking longitudinal and transverse partitions.

MANUFACTURING PAPER TUBES AND THE LIKE. A. Lutz, Bredereiche-Uckermark, Germany. U. S. 2,011,452, Aug. 13, 1935. Method of manufacturing paper and fibre tubes by telescopically applying tubular paper structure and tubular coating structure.

ENVELOPE. A. Teicher (to F. Croch, Leipzig, Germany). U. S. 2,014,914, Sept. 17, 1935. An envelope made as flat pocket formed from paper or other suitable sheet.

MANUFACTURE OF CARTONS, POTS, AND LIKE RECEPTACLES OF THIN METAL AND PAPER, CARDBOARD AND THE LIKE. P. Heyndrickx, Roubaix, France. U. S. 2,019,412, Oct. 29, 1935. A container having a tubular fibre body and metallic ends, an oil-resisting coating covering the inner walls of said body and metallic ends.

MULTICOMPARTMENT CONTAINER. H. Schneider, Altona-on-the-Elbe, Germany. U. S. 2,032,153, Feb. 25, 1936. A multiple compartment container comprising a single sheet of paper folded along intersecting lines with adhesive material on inside surfaces of adjoining folds thereby sealing the folded edge of each compartment.

CONTAINER CLOSURE. O. Hochstadter, Munich, Germany. U. S. 2,069,410, Feb. 2, 1937. A closure for containers, more

particularly bottles, with an inner expansible cap adapted to be releasable secured to the mouth of a bottle, and outer crimped cap disposed over said expansible cap and adapted to secure later onto bottle.

WRAPPING DEVICE. S. Braude, Paris, France. U. S. 2,071,-610, Feb. 23, 1937. A single sheet provided with four parallel fold lines to divide the sheet into five parallel bands, and when in folded position forms box, and equipped with fastening string.

CONTAINER. J. Siegert, Dresden, Germany. U. S. 2,096,-410, Oct. 19, 1937. A container comprising a casing forming the walls thereof and surrounding the object contained therein on all sides, and means constructed as carrying handle for same, and adapted to be opened and closed with one hand.

CONTAINER. G. E. Andersen, Stavanger, Norway. U. S. 2,097,682, Nov. 2, 1937. A container formed with a plurality of cells therein, and with lid formered integrally with the back.

TEARABLE CLOSURE. H. A. Skov, Frederiksbert, near Copenhagen, Denmark, U. S. 2,098,555, Nov. 9, 1937. A container closure in the form of a bottle cap, of the type which is adapted to be removed by tearing by means of a hand grip and formed of a material the strength of which corresponds to the strength of solid aluminum.

PRODUCTION OF WRAPPERS. A. Rambold, Dresden-Laubegast, Germany. U. S. 2,101,225, Dec. 7, 1937. The combination with a bag having a holder string and attached label.

MEASURING VALVE FOR USE WITH COLLAPSIBLE TUBES. A. Blanchard (to Societe Anonyme Establissements Betts et Blanchard, La Bastide, Bordeaux France). U. S. 2,110,103, March 1, 1938. A collapsible tube having a nozzle, a valve slidable in said nozzle and having a stem projecting therefrom.

BOX FOR PACKAGING CIGARETTES. C. W. Muller (to Universelle Cigarettenmaschinen-Fabrik J. C. Muller & Co., Dresden, Germany). U. S. 2,113,277, April 5, 1938. A box for cigarettes and the like comprising a box body open at one end and provided at its opposite edges with inner protecting flaps extending entire length of box.

PACKING FOR PERISHABLE VICTUALS. O. Metzger (to Vereinigte Deutsche Metallwerke A.-G., Zweigniederlassung Suddeutsche Metallindustrie, Nuremberg, Germany). U. S. 2,117,738, May 17. A packing bag for the preservation and storage of perishable victuals in liquid and solid state comprising an integrally formed thin-walled metal container capable of resisting sterilizing temperatures and pressures.

ROLL OF ADHESIVE STRIP. O. Herrmann & P. Muller (to Kalle & Co. Aktiengesellschaft, Wiesbaden-Biebrich, Germany). U. S. 2,119,163, May 31, 1938. A roll of adhesive strip, comprising a strip of cellulose derivative sensitive to moisture, coated with plastic adhesive material and wound in layers.

AIR AND MOISTURE PROOF RIP SEAL FOR PACKAGES. H. Schunemann (to Hans Neuerburg, G. m. b. H., Cologne-on-the-Rhine, Germany). U. S. 2,120,629, June 14, 1938. In a package such as a cigarette box, an air and moisture-proof sealing strip having an adhesive coating on one surface thereof and surrounding the box so as to cover the opening joint thereof, and narrow ripping strip arranged on the adhesive side of the sealing strip.

EXTRUSION CONTAINER. C. Davis, Nuilly-sur-Seine, France. U. S. 2,129,119, Sept. 6, 1939. An axially collapsible, non-resilient, metal extrusion-container for fluid, semi-fluid, and pasty substances, with extrusion nozzle at one end, and a stopper at other end.

CONTAINER FOR OIL, LARD, OR THE LIKE. O. Kodaira, Kohinati, Doishikawa-ku, Tokyo, Japan. A container for fluid material, comprising a hollow container and having inlet and outlet separate from each other.

DISPENSING AND CLOSING DEVICE FOR TABLETS, PILLS AND THE LIKE. P. Kreiten, Cologne-on-the-Rhine, Germany. A receptacle for round bodies, especially tablets made of a bottom plate rectangular shape with rounded corners and continuous wall projecting upwards at right angles, with insert corresponding to internal shape of said wall and having an aperture at one of its corners larger than the diameter of the round bodies to be dispensed.

TUBE. L. Serog, Bielsko, Poland. U. S. 2,159,714, May 23, 1939. A collapsible tube, with a rotatable cap positioned over the cover with destructible closed opening therein.

CLOSURE FOR BOTTLES AND THE LIKE. T. Schroder-Nielsen, Horten, Norway. U. S. 2,161,097, June 6. A closure for bottles comprising an elastic member adapted to embrace the neck of a bottle.

SEALING AND HANDLE ATTACHING DEVICE FOR PACKAGES. M. Goldschmidt, Berlin, Germany. U. S. 2,179,037, Nov. 7, 1939. A sealing and handle-attaching device for packages comprising an adhesive strip having spaced openings therein, a handle in the form of a loop projecting through each opening and having means for each loop secured on the adhesive coating of the strip.

ENVELOPE. H. Dahlhaus, Wuppertal-Elberfeld, Germany. U. S. 2,185,401, Jan. 2, 1940. An envelope having a front panel and a rear panel, one of said panels having thereon a patch of self-gumming adhesive.

BAG OF PAPER OR LIKE MATERIAL AND THE MANUFACTURE THEREOF. J. Cornelis Hellema (to N. V. Papierwarenfabrik Voorheen Gebrs. Hellema, Zaandam, Netherlands). U. S. 2,203,726, June 11, 1940. A collapsible bag of paper or the like forming in open condition a rectangular casing having a flat-one-piece bottom and outwardly open triangular pockets adjacent said bottom.

COLLAPSIBLE TUBE. A. Brossette, Solingen, Germany. U. S. 2,212,433, Aug. 20, 1940. Process for the production of tubes for the reception of plastic materials consisting in treating a sheet of a transparent cellulose derivative with a solution of collodium elasticum, traumaticin and benzyl alcohol, and then coating same with a different solution.

CONTAINER. O. Simon, Berlin, Germany. U. S. 2,222,213, Nov. 19, 1940. A bottle and stopper, bottle being provided with a notch in its neck that tapers downward, and stopper having large cavity, when notch and cavity are in registry contents of bottle may freely be dispensed, when out of registry bottle is entirely closed.

CARTON CONTAINER. C. W. Hartmann, Lyngby, Denmark. U. S. 2,243,378, May 27, 1941. A container comprising a seamless body part produced from pressed molded fibrous material.

TUBE. O. J. Bruun, Copenhagen, Denmark. U. S. 2,246,123, June 17, 1941. A collapsible tube consisting of a tubular body of lead provided with an inside and outside coat of tin.

TUBULAR CONTAINER. G. Hubner & W. Friedrichs (to Hafta Handelsgesellschaft fur Technische (*Continued on page 122*)

CELLOPHANE KEEPS DEFENDER DEVELOPER FRESH

BAG-IN-BOX UNIT REPLACES METAL CONTAINER

WHEN their key-opening metal container went to war, Defender Photo Supply Company faced a real replacement problem.

Photographic chemicals are easily caked by dampness, and lose their strength if exposed to air. Hence, solution strength is weakened and final prints are lacking in contrast and detail.

The problem was solved by using a moistureproof Cellophane bag to hold the contents and a sturdy, tuck-in box to hold the bag. Result: caking is avoided, the chemicals keep just as well as formerly, and consumer acceptance is excellent.

This is only one example of how the Cellophane bag-in-box saves metal containers. Perhaps it will be the answer to *your* metal-replacement problem. Write us for further information. E. I. du Pont de Nemours & Co. (Inc.), Cellophane Division, Wilmington, Del.

Du Pont

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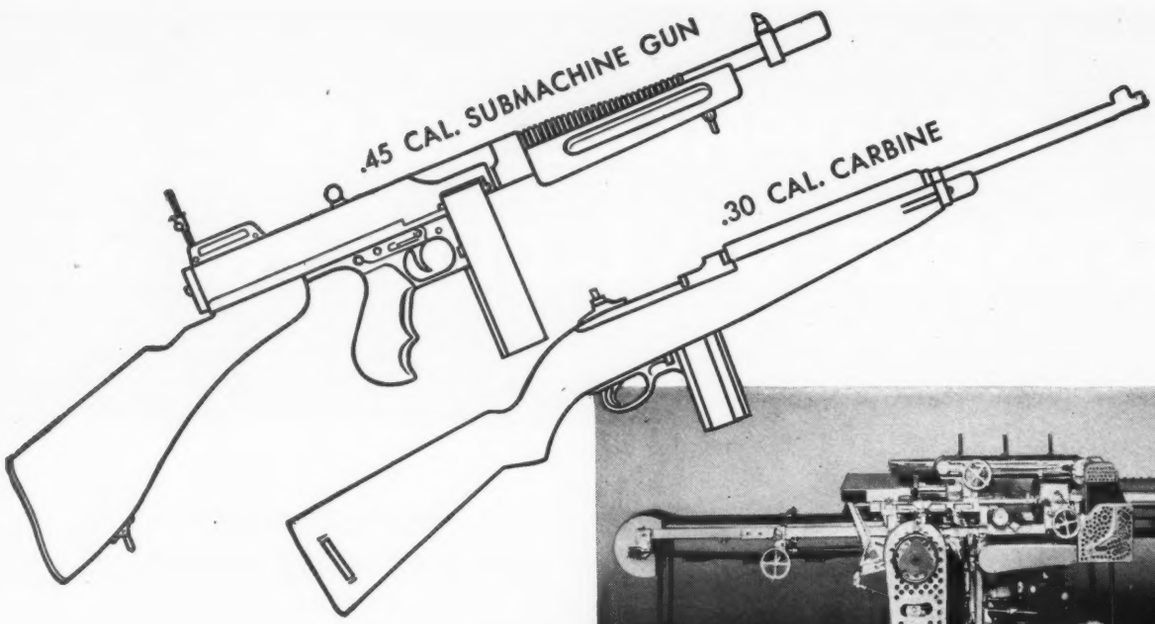

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SUBMACHINE-GUN CLIP

Accenting packaging's contribution to Victory, our versatile FA machine is now turning out protective wrapping for both carbine clips and .45 cal. submachine-gun clips.

This wrapping has the tough and essential job of protecting the clips from the damaging effects of dust and moisture—foes that are encountered in shipment as well as on the fighting fronts.

After being dipped in oil, the clips are wrapped in greaseproof and water-proof paper, heat-sealed. Due to the irregular surfaces on the clips, the machine had to be provided with special heat-sealing equipment to ensure a thoroughly firm and lasting seal.

A good illustration, we think, of the adaptability of this machine.

The FA is but one of a large family of our machines now wrapping millions of packages daily for the armed forces. From this extremely versatile group you'll have no difficulty in securing the right type of machine for your wartime and post-war wrapping needs.

Put your problem up to our nearest office

PACKAGE MACHINERY COMPANY
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PACKAGE MACHINERY COMPANY

Over a Quarter Billion Packages per day are wrapped on our Machines

PHOTO, COURTESY AMERICAN CAN CO., MAYWOOD, ILL.

Will electrolytic tin cans retain their present importance in canning after the war? Much depends upon the development of a heavier coating which won't need enameling.

The electrolytic can—its present status and future

by K. W. Brighton, Ph.D.*

Widespread adoption of electrolytic tinplate for cans, with resultant saving of up to 67 per cent of tin, represents one of the outstanding wartime developments in the packaging field.

With attention now turning more and more to the postwar period, it may be well at this point to take stock of the electrolytic tin cans and project what their future will be.

It is expected that 0.5-lb. electrolytic plates will find considerable postwar acceptance in containers for coffee, biscuits, shortenings and similar non-processed and non-corrosive products. Whether or not the electrolytic plate will be used in containers for thermally processed foods, such as fruits and vegetables, probably depends upon the results of current research regarding the minimum weight of electro-tin coating required to give a service life equal to that of hot-dipped tinplate—and whether such coatings can be applied more economically by electro-deposition or hot dipping.

At present, 0.5-lb. electrolytic plate must be inside-and-outside enameled to allow its use in processed cans and double-enameled electrolytic plate costs more than plain hot-dipped plate. However, it is possible that electro-tin coatings of 1 lb. or higher will have adequate corrosion resistance without enameling. If such coatings can be applied economically, they may replace hot-dip tinning.

The rise of electrolytic plate, which started long before Pearl

* Research Department, American Can Co.

Sorting electrolytic sheets in a Birmingham tinplate mill. Mirror-like surface is almost indistinguishable from that of regular hot-dipped plate of much heavier coating.

Harbor, was a direct outgrowth of the development of the continuous hot strip and cold reduction mills. When these mills came into operation it was realized that some day continuous tinning on strip would compete with or replace the hot-dip tinning of individual sheets.

The distribution of tin on hot-dipped plate has always varied over a considerable range and it seemed logical that if a uniform coating of tin could be applied on the plate by electrodeposition, equivalent performance could be obtained with a coating thinner than the non-uniform coating applied by hot dipping. There was also the possibility of saving the 0.15 to 0.20 lb. of tin per base box lost in hot dipping due to dross, stack losses, etc.

By 1937, electrotinning lines were in operation at the Crucible Steel Co. and the Gary mill of the Carnegie-Illinois Steel Corp.

The first Gary plate bore a 0.5-lb. coating of tin and was plated from an acid bath, then scratch brushed with nickel silver brushes to produce a uniform appearance. It was tried satisfactorily on coffee can ends. The principal requirement of the protective tin coating for this application was prevention of rusting and under the favorable storage conditions to which coffee cans are exposed the 0.5-lb. tin coating performed exceptionally well.

Half-lb. weight determined arbitrarily

There is no written record of exactly why a 0.5-lb. coating was chosen as the weight of tin that should be applied on electrolytic plate. The most probable reason was that by doing so one pound of tin per base box would be saved over the standard coke plate which had a pot yield of 1.5 lb. per base box. However, the popular concept of electrolytic plate until very recently has been that it bears only a 0.5 lb.-per-base-box coating of tin and this concept is just now changing as plates with heavier and lighter coating weights become available. When electrolytic plate is referred to in this article the 0.5-lb. coating will be indicated unless the coating weight is otherwise stated.

As soon as the use of electrolytic plate was successfully started on coffee can ends, investigation was begun to find other applications for the plate. Experiments indicated that the plate was difficult to solder, especially after coating with enamels, but despite this a number of experimental cans were made and packed with various vegetable, meat and fish products. It was found that cans made of electrolytic plate which were not inside-enameled—known in the industry as plain cans—had a surprisingly poor storage life even with products not normally considered corrosive, such as evaporated milk, dog food, tuna, etc. However, the inside enameled electrolytic cans had good service life.

Cost factor delayed development

Exploitation of inside enameled electrolytic plate for the tops and bottoms of food cans might have been considered at that time but for the fact that the cost of inside enameled electolytic plate was as great as plain hot-dipped plate and the electrolytic plate ends did not provide so much external corrosion resistance as the hot-dipped plate ends. Consequently, the excellent performance of inside enameled electrolytic cans was merely filed away, fortunately to be pulled out later in time of national crisis.

The development of the various electrolytes and the engineering of the several types of electrolytic lines have been described in detail by Lippert[1] and others and will not be discussed in this paper. However it might be stated that most of the early electrolytic plate was scratch brushed to improve its appearance or sold in the matte (as plated) condition. (By this time most suppliers of electrolytic plate are equipped to melt the tin coating. Melting increases the corrosion resistance, improves the solderability and provides a better appearance. Unless otherwise stated, electrolytic tinplate mentioned from this point on will refer to the melted product.)

Importance of electrolytic in tin conservation

The decision to use electrolytic tin plate in cans for processed foods came about because of the Tin Conservation Program. Some tin conservation experiments were in progress in this country long before Pearl Harbor. In the fall of 1940 the principal can manufacturers cooperated with the National Canners Association and the U. S. Army Quartermaster Corps in an experiment to determine whether the tin coating weight on hot dipped tin plate could be reduced from 1.50 lb. per base box (pot yield) to 1.25 lb. per base box. Early in 1941 the Can Manufacturers Institute set up a committee for tin conservation which in turn named a technical sub-committee with Dr. R. H. Lueck as chairman. This committee visualized the problem of tin conservation as a series of retrenchment steps, the first of which involved the use of 1.35 lb. plate for processed food products and the use of electrolytic, Bonderized, and untreated black plates for such non-processed items as coffee, oil, shortenings, paints, etc. However, the sequence of logical steps which had been set up was completely upset by the national disaster at Pearl Harbor and the subsequent loss of Singapore. In a matter of a few months,

[1] T. W. Lippert, *Iron Age*, April 30, 1942, pg. 30.

countries which had supplied 92% of our tin fell into enemy hands. It was then realized that there would have to be a drastic reduction in the use of tin for food cans.

The first steps on the part of the WPB were to reduce the tin coating weight on hot-dipped tinplate from the 1.35-lb. coating established by OPM in 1941 to 1.25 lbs. per base box and to place drastic restrictions on the items for which tinplate could be used. However, a fundamental program was needed for conserving our stockpile of tin without further restricting the metal containers which are so necessary for the transportation of food to our armed forces, allies and the civilian population.

To meet this need the technical sub-committee drew on their limited experience with electrolytic and Bonderized plate and outlined a program with four stages of increasing tin conservation. The stages provided for the increased use of electrolytic and Bonderized plates as they became more available and as the can manufacturers completed changes in their equipment required to utilize the new plates. Each essential food product was considered individually and the projection made as to where hot dipped plate, electrolytic plate, and Bonderized plates would be applicable in each of the four stages. The details of the tin conservation program have been discussed by Lueck[2] and others.

Realizing that the foundation for the tin conservation program would be the use of electrolytic plate, the various steel mills made plans for the construction of additional electrolytic units. The types of electrolytic lines chosen fall into two broad classes—those using an acid electrolyte, and those using an alkaline electrolyte. The advantages and disadvantages of each from the operating standpoint have been discussed by Lippert. From the can maker's point of view the alkaline plate, at the time the decisions were made, offered better solderability than the acid plate, but this was balanced by the fact that the adhesion of organic coatings to acid plate was found to be better than to alkaline plate.

Once decision had been made that there would be two general types of electrolytic plate, the can makers were faced with the problems of first, determining whether or not the projections of the technical sub-committee were correct—that is, in changing the "think" to a "know"—and second, determining how these electrolytic plates would perform in the various can manufacturing operations. A part of the information obtained in the study of these two problems will be discussed in the remainder of this article.

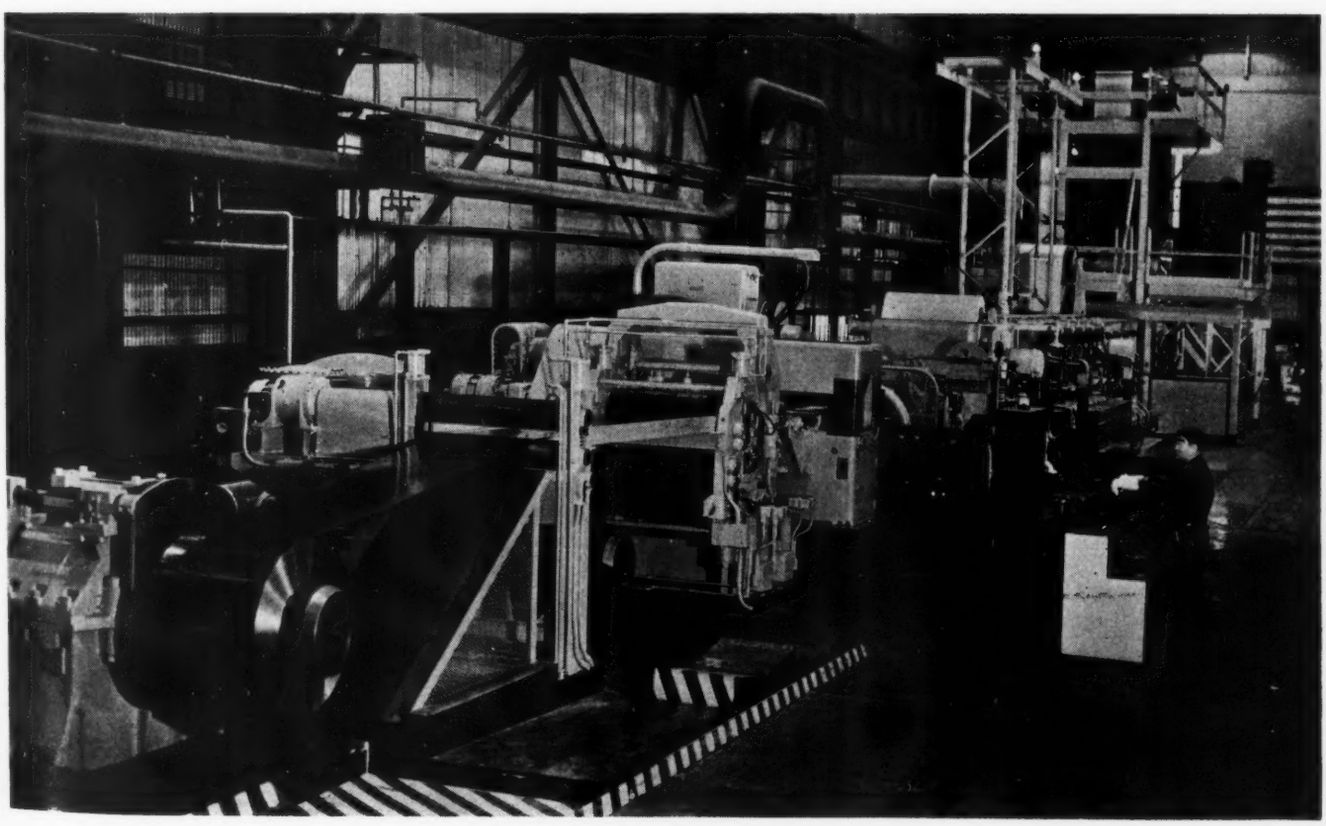
Enamel adhesion

The adhesion of enamels to electrolytic plate is a very important subject. At the present time all of the electrolytic tinplate used in cans for processed products must be inside enameled in order to provide adequate corrosion resistance. Enamels are generally used on hot-dipped plate to prevent the bleaching of the colored fruits and vegetables and also to prevent the formation of an unattractive sulphide film on the interior of cans packed with products containing sulphur-bearing proteins such as peas, corn and seafood. The enamels are *not* applied on hot-dipped plate to increase the corrosion resistance. In fact, the shelf life of some corrosive products is longer in plain cans than in enameled cans. However, this has not been found to be true of electrolytic tinplate which has to be enameled to provide enough corrosion resistance to allow its use for food containers.

In setting up standards for the adhesion of enamels to electrolytic plate it is believed necessary to place these higher than for hot-dipped plate. With hot-dipped plate it is not particularly serious if the enamel is not perfectly continuous because under the enamel is a relatively thick protective film

[2] R. H. Lueck, Proc. Inst. Food Tech., pg. 128 (1942).

New electrolytic tinning line in operation at Irvin (Pittsburgh) works of the Carnegie-Illinois Steel Corp.



of tin. However, with electrolytic plate the film of tin is only one-third as thick as on hot-dipped plate and it has been found that even mildly acid products tend to detin the area surrounding a discontinuity in the enamel.

The film of palm oil present on the surface of hot-dipped plate has seldom interfered with the adhesion of the oleoresinous baking varnishes commonly used as can enamels. However, several years ago, synthetic enamels, especially heat-reactive phenolics, were introduced. Since these phenolic can coatings are more resistant than the standard oleoresinous enamels, it is planned to use them extensively on electrolytic plate. Due to their sensitivity to foreign materials on the surface of the plate, the adhesion of these phenolic enamels has become an important problem. In general, there has not been much difficulty in obtaining adhesion of the standard oleoresinous coatings to electrolytic plate.

Solderability

Considerable progress on the soldering of electrolytic plate has been made since the first plate appeared in 1937. Modification of the electrolyte and addition agent was helpful. But possibly the greatest forward step was the adoption of silver-lead solder. A number of difficulties had to be overcome, but its use paved the way to electrolytic tinplate cans. With silver-lead solder of proper composition the solder bond is stronger on electrolytic plate than it is on hot-dipped plate soldered with the conventional 40–60 tin-lead solder.

Even with silver-lead solder, the can manufacturer understands that he is not soldering hot-dipped plate and so modifies his entire procedure to accommodate the soldering characteristics of electrolytic plate. A difference still exists in the soldering characteristics of alkaline and acid electrolytic plates, but with the proper modification of soldering technique both plates may be soldered satisfactorily at commercial speeds.

The resistance of electrolytic plate to rusting is almost directly proportional to the weight of tin coating it bears. Cans made of electrolytic plate with tin coating weights lighter than 0.5 lb. show considerable rusting in storage, but at about 0.5 lb. the plate possesses enough rust resistance so that it will perform satisfactorily if subjected to favorable handling and storage conditions. A large number of cans have been distributed with electrolytic ends which have not been outside-enameled and the number of complaints with these cans has been small. However, under present conditions when the packer does not know which of his cans will be exported to combat areas, it is advisable to outside enamel all electrolytic cans.

When exposed to the elements, enameled 0.5-lb. electrolytic plate is far more rust resistant than plain 1.25-lb. or even 1.5-lb. hot-dipped plate. In fact, the enameling of plates of varying tin coating weight serves to reduce the spread in rust resistance. The difference between the performance of enameled 0.5-lb. electrolytic plate and enameled 1.25-lb. hot-dipped plate is slight, and if the samples are exposed directly to the atmosphere the choice of the enamels used is more important than the choice of plates.

The discussion of the internal corrosion resistance of electrolytic plate might well be started by stressing the importance of the steel base. Hartwell[3] has discussed in detail the effect of the presence of various elements upon the corrosion resistance of hot-dipped plates. The results of work to date indicate that his conclusions regarding hot-dipped plate are applicable to the base steel of electrolytic plate.

Ratio of coating weight to service life

In working with hot-dipped plate over a period of years it was found that with base steels of the same chemical composition the service life of plain containers was almost directly proportional to the coating weight of tin on the plate. From these results it was expected that the service life of plain cans made from 0.5-lb. electrolytic plate would approach one-third that of cans made of plain 1.5-lb. plate. However, when the first experimental packs were made back in 1937 it was found that the service life of plain cans was much shorter than predicted. Plain cans packed with products such as asparagus and spinach, which exert a strong detinning action, were particularly vulnerable to inside corrosion. In one particular

[3] R. R. Hartwell, "Surface Treatment of Metals," pg. 69 (1941), and *Sheet Metal Industry*, 172, 1017 (1941).

Tin anode being placed in plating tank of electrolytic line at the Pittsburgh works of Carnegie-Illinois. As a conservation measure this method saves 40 per cent of raw tin as compared with the older dip method.

pack, spinach in plain brushed electrolytic cans stored for only two months at room temperature absorbed 424 p.p.m. of tin while cans made of plain hot-dipped tinplate showed only 27 p.p.m. This indicated that electrolytically deposited tin went into solution much faster than tin applied by hot dipping. As stated previously, the performance of enameled electrolytic plate was by contrast quite encouraging.

After the technical sub-committee of the Can Manufacturers Institute had made their projections for the use of conservation plates as a war measure, it was felt necessary to demonstrate experimentally that these plates when enameled would behave as predicted. A large number of experimental packs were therefore made during the 1942 canning season. Certain information obtained from these packs up to the present time will be shown in discussing the corrosion resistance of electrolytic plate. However, the packs are still under observation and the results shown here are by no means to be considered as the final word.

The corrosion-testing technique

In making the corrosion packs, the attempt was made to control all variables as closely as possible. Heats of steel of the proper chemical composition were selected at the mill and all of the plate of varying coating weights such as 1.50-lb. hot-dipped, 1.25-lb. hot-dipped, 0.75-lb. melted electrolytic, 0.5-lb. melted electrolytic, 0.5-lb. brushed electrolytic, 0.25-lb. brushed electrolytic and 0.1-lb. electrolytic were made from steel of the same heat. After manufacture, the cans from the various lots were alternated so that variations during packing in the cannery were minimized. The filled cans were returned from the cannery, 50 being stored at 100 deg. F. and 50 others at 70 deg. F. Additional cans from the same pack were also held for periodic opening to observe the interior of the cans, condition of the product and to obtain tin and iron analyses on the product.

The principal procedure for obtaining information on the corrosion resistance of cans in the past has been to examine them periodically and record the number of hydrogen springers and perforations which have occurred. Hydrogen springers are cans whose ends have flipped out due to the pressure of hydrogen formed through corrosion processes. Perforations occasionally occur on enameled cans when localized action takes place. The time required for hydrogen springers or perforations to occur at a certain temperature is known as the shelf or service life. The corrosion resistance of plates has usually been compared numerically by stating the number of days required to produce 50 per cent failures. This procedure was satisfactory in normal times when several years could elapse before the final results of the experiment were available. However, in the emergency it was necessary to know the rate at which the cans were failing, so that the results could be translated into conservation measures even before the cans actually failed. To do this, periodic flip vacuum tests were made on each can in storage at 100 deg. F. and 70 deg. F. and the average loss of vacuum was used as the criterion of failure.

The flip vacuum device is an apparatus for applying an external vacuum to the ends of cans to overcome the vacuum inside the cans until the ends finally flip out. During storage the vacuum in the cans is gradually dissipated by the hydrogen formed through corrosion processes and it takes less external vacuum to flip the ends. By determining the average vacuum required a month later it is possible to determine the rate of failure of cans without destroying any of them.

An example of the type of data obtained in flip vacuum tests is seen in Table I, which shows the flip vacuum loss in plain cans packed with grapefruit juice and stored for more than 300 days.

It will be noted that there is a slow but steady drop in vacuum in the cans made of hot-dipped plate and a more rapid drop in the cans made of 0.75-lb. and 0.5-lb. melted electrolytic plate. The accelerating effect of increased temperature on the rate of corrosion causes the vacuum to drop more rapidly at 100 deg. F. than at 70 deg. F.

Corrosion resistance of plain electrolytic cans

It has been stated previously that work with the early electrolytic tinplate in 1937 showed that unsatisfactory results were obtained in plain electrolytic cans, while the results in enameled cans were by comparison quite encouraging. Plain cans as well as enameled electrolytic cans were again packed in 1942 using the best melted electrolytic plates then available and again it was found that the plain cans did not give adequate shelf life, even when packed with products normally considered relatively non-corrosive such as peas, tuna and sausage in casings. Data comparing cans made of plain electrolytic plate with control cans made of 1.25-lb. hot-dipped plate are shown in Table II.

It will be seen in Table II that the plain electrolytic cans are losing vacuum relatively rapidly. The cans packed with peas show a loss of flip vacuum of 8.2 in. after 262 days' storage at 100 deg. F. The first hydrogen springers may be expected in several more months' storage. The plain electrolytic cans packed with sausage in casings are also losing vacuum and all of the tuna cans were hydrogen springers after 142 days at 100 deg. F.

In further studies on plain cans to compare melted electrolytic plate with the unmelted plates, either brushed or matte,

Inspector on electrolytic tinning line watches the strip after it has passed through melted coating. Signal box in his hand warns finished inspection line of any flaw.

TABLE I.—FLIP VACUUM LOSS AS A MEASURE OF RATE OF CORROSION. GRAPEFRUIT JUICE IN PLAIN NO. 2 CANS

Plate	111	159	195	226	269	300	343
			Days stored at 100 deg. F.				
			Loss in inches				
1.25 lb. hot-dipped	0	0.2	1.0	1.0	3.7	4.5	5.0
0.75 lb. electrolytic	2.4	3.9	5.4	7.2	10.2	12.5	13.1
0.5 lb. electrolytic	3.4	6.0	10.2	14.1	17.7	19.2	(100% swells)
			Days stored at 70 deg. F.				
		156	191	230	286	317	348
			Loss in inches				
1.25 lb. hot-dipped	...	0	+0.1	+0.1	0	0	0
0.75 lb. electrolytic	...	0	0	0.2	1.2	1.7	2.5
0.5 lb. electrolytic	...	+0.2	+0.2	−0.2	2.9	3.5	4.5

TABLE II.—COMPARISON OF CORROSION RESISTANCE OF PLAIN ELECTROLYTIC TIN PLATE AND 1.25-LB. PLATE. PLAIN NO. 2 CANS

Product	*Plate*	*Enamel*	*Storage at 100 deg. F.*			*Storage at 70 deg. F.*		
			Days	*Flip vacuum loss, inches*	*Failures per M cans*	*Days*	*Flip vacuum loss, inches*	*Failures per M cans*
Peas	1.25 lb.	Yes	262	0.4	0	269	0.0	0
	0.5 lb.	No	262	8.2	0	269	0.2	0
Sausage in casings	1.25 lb.	No	199	2.5	0	181	1.6	0
	0.5 lb.	No	199	6.7	0	181	1.6	0
Tuna	1.25 lb.	No	142	1.7	0	90	1.7	0
	.50 lb.	No	142	...	1000	90	2.4	0

TABLE III.—COMPARISON OF CORROSION RESISTANCE OF MELTED AND BRUSHED ELECTROLYTIC PLATE. PLAIN NO. 2 CANS

Product	*Plate*	*Storage at 100 deg. F.*			*Storage at 70 deg. F.*		
		Days	*Flip vacuum loss, inches*	*Failures per M cans*	*Days*	*Flip vacuum loss, inches*	*Failures per M cans*
Grapefruit juice	1.25 lb.	159	0.2	0	348	0	0
	0.5 lb. melted	159	6.0	0	348	4.5	60
	0.5 lb. brushed	159	10.1	653	348	9.8	400
Evaporated milk	1.25 lb.	66	...	0	247	...	0
	0.5 lb. melted	66	...	640	247	...	0
	0.5 lb. brushed	66	...	1000	247	...	480

TABLE IV.—COMPARISON OF CORROSION RESISTANCE OF CHEMICALLY TREATED AND UNTREATED ELECTROLYTIC PLATE. PLAIN NO. 2 CANS

Product	*Plate*	*Chemical treatment*	*Storage at 100 deg. F.*			*Storage at 70 deg. F.*		
			Days	*Flip vacuum loss, inches*	*Failures per M cans*	*Days*	*Flip vacuum loss, inches*	*Failures per M cans*
Pears	1.25 lb.	No	215	1.9	0	180	0.2	0
	0.5 lb.	Yes	215	3.6	0	180	0.5	0
	0.5 lb.	No	215	10.5	195	180	1.6	0
Fruit cocktail	1.25 lb.	No	214	0.8	0	185	0.0	0
	0.5 lb.	Yes	214	3.6	0	185	0.8	0
	0.5 lb.	No	214	...	920	185	2.4	0
Tomato juice	1.25 lb.	No	225	0.2	0	228	0.2	0
	0.5 lb.	Yes	225	3.0	0	228	2.5	0
	0.5 lb.	No	225	9.1	216	228	4.0	0

TABLE V.—COMPARISON OF CORROSION RESISTANCE OF CANS WITH ENAMELED ELECTROLYTIC ENDS AND PLAIN HOT-DIPPED BODIES AND PLAIN HOT-DIPPED CANS. NO. 2 CANS

Product	Can construction				Storage at 100 deg. F.			Storage at 70 deg. F.		
	Ends		Bodies		Days	Flip vacuum loss, inches	Failures per M cans	Days	Flip vacuum loss, inches	Failures per M cans
	Plate	Enamel	Plate	Enamel						
Apricots	1.25 lb.	No	1.25 lb.	No	345	6.2	137	360	+0.4	0
	0.5 lb.	Yes	1.25 lb.	No	345	2.7	33	360	0.3	0
Royal Anne cherries	1.25 lb.	No	1.25 lb.	No	312	8.4	200	340	3.9	0
	0.5 lb.	Yes	1.25 lb.	No	312	4.0	0	240	3.1	0
Peaches	1.25 lb.	No	1.25 lb.	No	300	4.3	0	185	0.0	0
	0.5 lb.	Yes	1.25 lb.	No	300	4.7	60	185	0.4	0

TABLE VI.—COMPARISON OF CORROSION RESISTANCE OF ENAMELED ELECTROLYTIC TIN PLATE AND HOT-DIPPED PLATE NEUTRAL PRODUCTS IN NO. 2 CANS

Product	Plate	Enamel	Storage at 100 deg. F.			Storage at 70 deg. F.		
			Days	Flip vacuum loss, inches	Failures per M cans	Days	Flip vacuum loss, inches	Failures per M cans
Peas	1.25 lb.	Yes	262	0.4	0	269	0.0	0
	0.5 lb.	Yes	262	0.1	0	269	0.0	0
Sausage in casings	1.25 lb.	No	199	2.5	0	181	1.6	0
	0.5 lb.	Yes	199	2.0	0	181	0.9	0
Tuna	1.25 lb.	No	142	1.7	0	90	1.7	0
	0.5 lb.	Yes	142	1.0	0	90	1.1	0

TABLE VII.—COMPARISON OF CORROSION RESISTANCE OF ENAMELED ELECTROLYTIC PLATE AND HOT-DIPPED PLATE MILDLY ACID PRODUCTS IN NO. 2 CANS

Product	Plate	Enamel	Storage at 100 deg. F.			Storage at 70 deg. F.		
			Days	Flip vacuum loss, inches	Failures per M cans	Days	Flip vacuum loss, inches	Failures per M cans
Peaches	1.25 lb.	No	245	1.9	0	200	0.3	0
	0.5 lb.	Yes	245	...	1000	200	1.1	0
Tomato juice	1.25 lb.	No	225	0.2	0	228	4.2	0
	0.5 lb.	Yes	225	10.5	0	228	0.2	0
Beets	1.25 lb.	Yes	220	3.2	0	217	0.3	0
	0.5 lb.	Yes	220	13.3	0	217	0.9	0

TABLE VIII.—COMPARISON OF CORROSION RESISTANCE OF SIDE SEAM STRIPED AND UNSTRIPED ENAMELED ELECTROLYTIC NO. 2 CANS

Product	Plate	Enamel	S. S. Stripe	Storage at 100 deg. F.			Storage at 70 deg. F.		
				Days	Flip vacuum loss, inches	Failures per M cans	Days	Flip vacuum loss, inches	Failures per M cans
Peaches	1.25 lb.	No	No	245	1.9	0	200	0.3	0
	0.5 lb.	Yes	Yes	245	3.0	0	200	0.0	0
	0.5 lb.	Yes	No	245	..	1000	200	1.1	0
Tomato juice	1.25 lb.	No	No	225	0.2	0	228	0.2	0
	0.5 lb.	Yes	Yes	225	4.2	0	228	3.3	0
	0.5 lb.	Yes	No	225	10.5	0	228	4.2	0
Beets	1.25 lb.	Yes	No	220	3.2	0	217	0.3	0
	0.5 lb.	Yes	Yes	220	3.0	0	217	0.0	0
	0.5 lb.	Yes	No	220	13.3	20	217	0.9	0

it was found that without exception the melted plate had better corrosion resistance than the unmelted. In Table III are shown data obtained on cans made of melted and brushed electrolytic plate packed with grapefruit juice and milk.

The superior corrosion resistance shown above plus the better appearance, increased solderability and greater resistance to external rusting have caused the can manufacturers to favor the melted electrolytic plate. Plain cans made of melted electrolytic plate approach hot-dipped plate so closely in appearance that only those intimately familiar with the two plates can tell them apart.

Another factor affecting the corrosion resistance of plain electrolytic plate which appears to be important is the chemical treatment given the plate after melting. Chemical treatments for electrolytic plate were developed principally to reduce the oxidation during the baking operation subsequent to enameling. They have since been helpful in improving enamel adhesion to alkaline electrolytic plate. Table IV presents the results obtained with chemically treated and non-chemically treated plate cans packed with fruits. These indicate that the chemical film on the plate may play an important role in the corrosion resistance of plain electrolytic plate.

The use of enameled electrolytic ends and enameled bonderized steel ends on hot-dipped bodies was proposed as the second stage of the tin conservation program. Results of corrosion tests made on these composite containers have been very encouraging even with the moderately acid fruit products. In Table V are shown representative results obtained.

The good behavior of cans with enameled electrolytic ends on plain hot-dipped bodies seen in Table V is probably due to the solution of tin from the plain hot-dipped bodies. Lueck and Blair[4] as well as Kohman and Sanborn[5] have shown that the presence of stannous ion in the corroding medium retards the attack on the steel of tinplate.

The results shown in Table V are promising and if no particular change is found on further storage it is possible that such containers will be used commercially next year for some fruit products such as peaches and pears. In fact, the performance of the cans with enameled electrolytic ends and hot-dipped bodies is sufficiently encouraging to warrant experimental packs this year with enameled electrolytic bodies and plain hot-dipped ends. And the conservation of tin is approximately 50 per cent greater with this combination.

In stage three of the Tin Conservation Program the use of enameled electrolytic or enameled bonderized ends on enameled electrolytic bodies was projected. The results obtained to date in the experimental packs indicate that such cans are doing well with relatively non-corrosive products such as meats, fish, peas, corn and lima beans.

In Table II the results of packs of peas, sausage in casings and tuna in plain electrolytic tinplate cans were shown. In Table VI the results are shown for the same products packed in enameled electrolytic plate. It will be noted that their performance compares favorably with the hot-dipped control cans up to the present time.

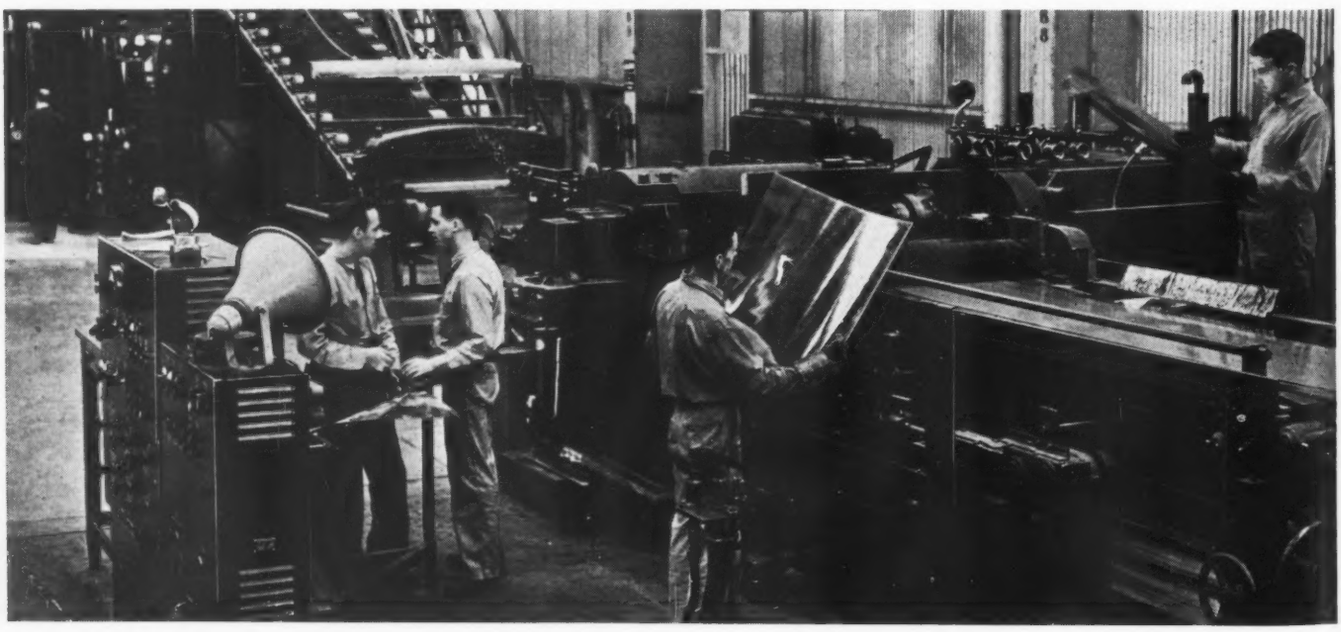
Mildly acid products

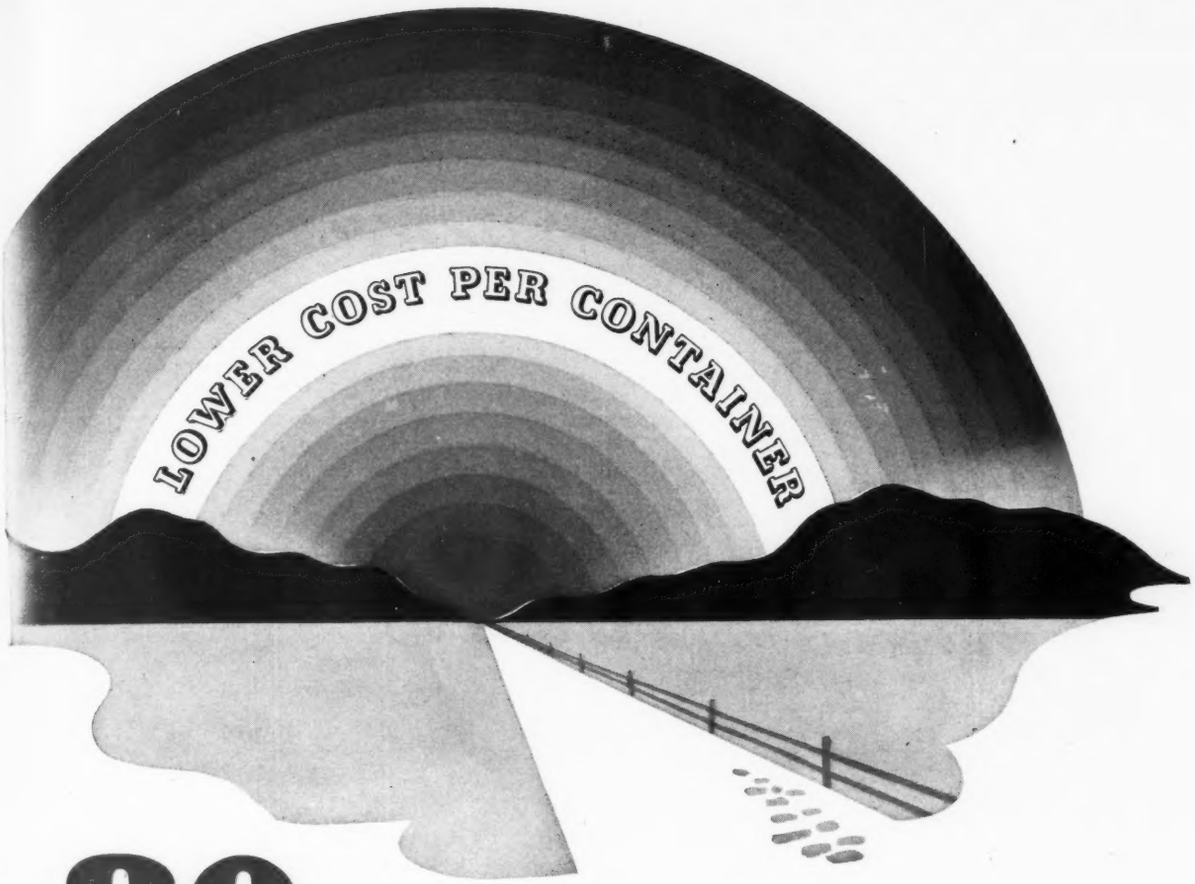
The results obtained in packing mildly acid products such as tomatoes, peaches and pears in full enameled electrolytic plates are not as good as had been expected. It had been predicted that the color of peaches, pears, fruit cocktail, etc., would be affected if packed in full enameled cans. The experimental packs show a slight darkening of these products, but in addition the cans are corroded at enamel discontinuities in both bodies and ends. The extent of the corrosion is greatest at drawn areas such as the shoulder of the countersink of the ends. If this localized corrosion proceeds far enough, it may result in ultimate perforation of the cans. The results obtained with packs of peaches, tomato juice and beets in full-enameled electrolytic cans are shown in Table VII.

For a number of years it has been known that with modern hot-dipped tinplates the area in enameled cans where most corrosion occurs is at the side seam. In the manufacture of enameled cans the plate is enameled in the flat and the bodies formed from the sheets. In the body-forming operation, the metal is bent and bumped to form the side seam of the can. This working of the metal fractures the enamel along the inside of the side seam and exposes the base plate. In developing the beer can, a stripe (*Continued on page 118*)

[4] R. H. Lueck and H. T. Blair, *Trans. Elec. Soc.*, 52, 257 (1928).
[5] E. F. Kohman and N. F. Sanborn, *Ind. Eng. Chem.*, 20, 1373 (1928).

At Birmingham works of Tennessee Coal, Iron & Railway Co., inspectors examine electro-plated tin sheets.





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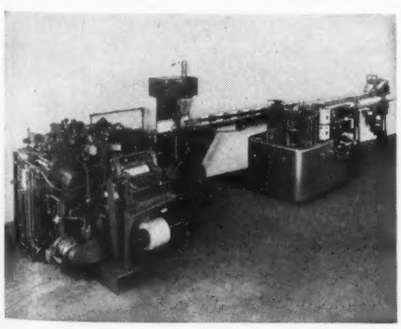

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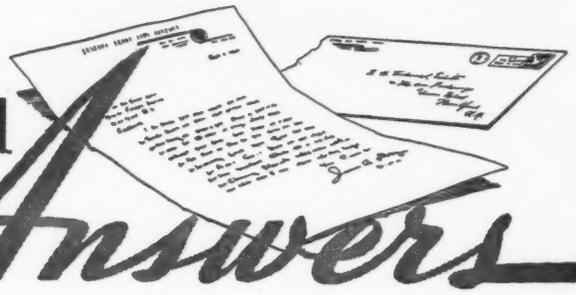
QUESTIONS and Answers



This consultation service on packaging subjects is at your command. Simply address your questions to Technical Editor, Modern Packaging, 122 East 42nd St., New York 17, N. Y. Your name or other identification will not appear with any published answer.

Testing fibre cans for moisture protection

QUESTION: In reading your column of questions and answers in the November issue of MODERN PACKAGING, *we were very favorably impressed by your discussion on the testing of fibre cans for moisture protection. The tests we usually conduct in our laboratory coincide with the one you outlined, with one notable exception. We include in our tests several empty containers from the same lot as the cans under test. This has been found to be necessary where the product was extremely hygroscopic and the container not too satisfactory. In such a case, the rate of absorption is greatly decreased after a week's storage and in certain cases is only a fraction of that absorbed during the first week. We believe that this gives an added index to the moisture required to saturate the fibre wall.*

ANSWER: Many laboratories included empty fibre cans in many of their tests, but these data have little or no bearing on the final rate of moisture gain of a package. If fibre cans are freshly made and some of the moisture of the glue is still present, it might be possible to start a test and have the first week's weight gain identical with that of subsequent weeks. However, in most cases fibre cans are thoroughly dried down before being put under tests and so it is usual to find that the first week's weight gain is lower than that of subsequent weighings. That, of course, is the purpose of eliminating the first week's figures because this is the period during which the rate of flow is being established and at least part of the moisture going into the package is being used to bring the fibre body into equilibrium, (1) with the outside atmosphere and (2) with the product on the inside. Therefore, the quality of moisture picked up by the fibre body will depend on both of these variables.

If you include in the test fibre cans which have no product or calcium chloride, you will get erroneous results, and in the case of testing in a high humidity atmosphere, the weight gain will be excessively high. This is due to the fact that (1) part of the moisture will go into the fibre can to saturate the inside atmosphere, and (2) part of the moisture gain will be bringing the inside fibre layers into equilibrium with the high humidity atmosphere. Obviously, neither of these conditions are true where a product having a low equilibrium humidity is filling the inside of the package.

The value which you get by including empty packages in the test will be characteristic of the fibre body construction, but actually the moisture carried by the fibre body will vary with each particular products. It is also true that the quantity of moisture required to bring the fibre body to equilibrium with the atmosphere on the product, that is at normal rate of flow, is unimportant because none of this moisture goes into the product.

If you are interested in the actual moisture taken up by the fibre body, I think this can best be done by exposing the fibre body to a given level of humidity, say 40 per cent and 100 deg. F. until they come to equilibrium. These same cans can then be put under test using a thin sulphite or kraft inner bag to hold the product. At the end of the test, the product and bag can be carefully lifted out and fibre cans weighed, then put back into the 40 per cent R.H. and 100 deg. F. atmosphere and weighed until there is no further weight change. The difference between these two weights would give you the actual extra moisture in the fibre body during the test.

Free water in multiwall bag?

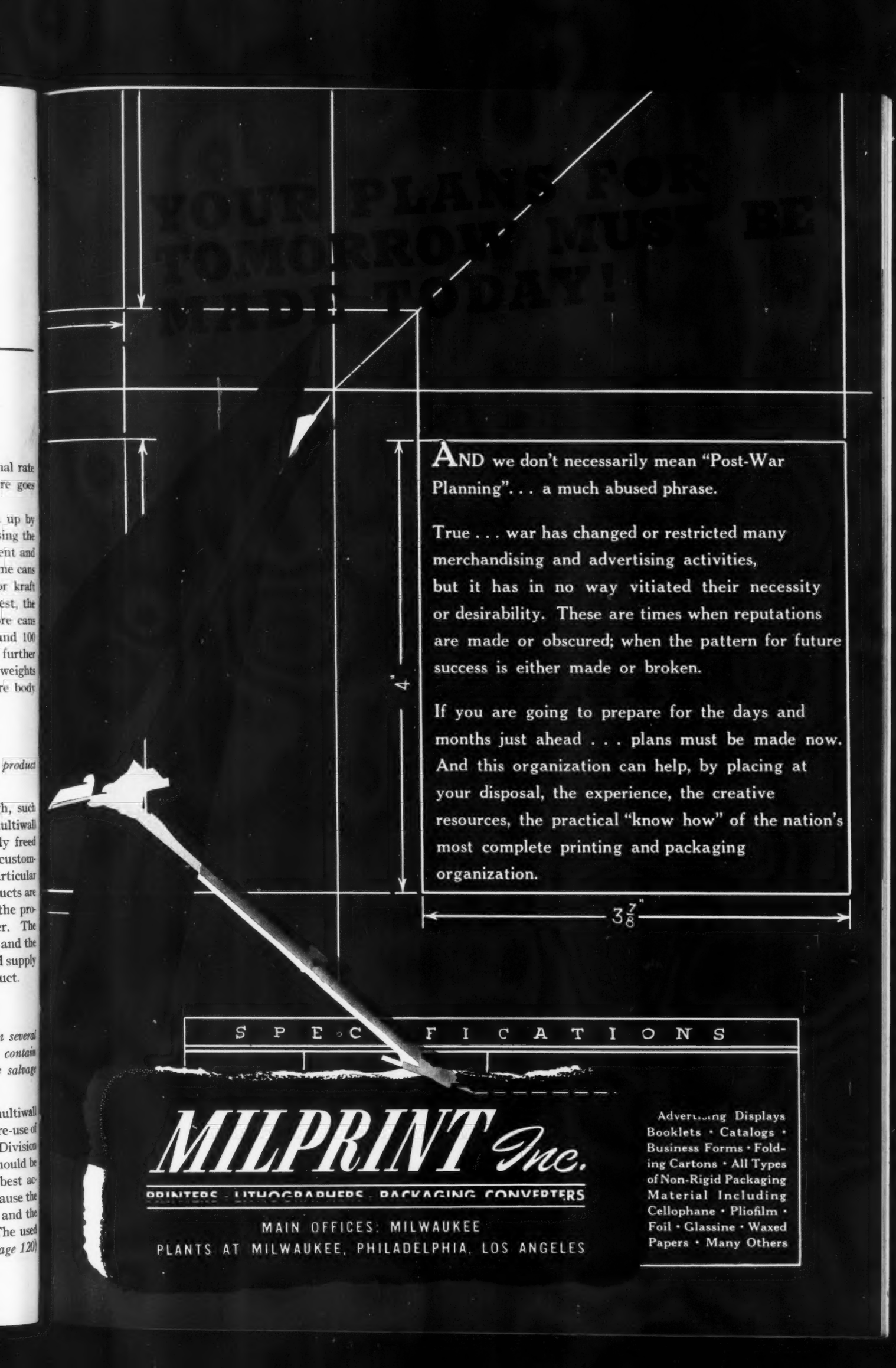
QUESTION: Can multiwall bags be made to hold a product with some free water?

ANSWER: Yes, with certain qualifications. Dough, such as biscuit mix for example, can be packaged in the multiwall paper bag since water mixed with flour is not readily freed from the flour. However, multiwall paper bags are custom-made containers and are designed to protect the particular product to be packaged. In cases where special products are to be packaged such as those containing free water, the producer should consult his multiwall paper bag supplier. The physical characteristics of the product will be studied and the technical staff of the bag company will recommend and supply samples of paper bags which are suitable for the product.

Salvaging multiwall bags

QUESTION: We receive some of our raw materials in several types of multiply shipping bags. Some of these bags contain wax plies, others asphaltic laminations. How can we salvage bags for re-use or waste paper?

ANSWER: The most important salvage value of multiwall paper bags is for re-use. A program to stimulate the re-use of containers is now being carried on by the Containers Division of WPB. Wherever possible multiwall paper bags should be opened without damage to the container. This is best accomplished where the sewn type container is used because the thread at the top of the bag can be unraveled easily and the bag completely opened without tearing the plies. The used bags should be placed in neat piles (*Continued on page 120*)



AND we don't necessarily mean "Post-War Planning"... a much abused phrase.

True... war has changed or restricted many merchandising and advertising activities, but it has in no way vitiated their necessity or desirability. These are times when reputations are made or obscured; when the pattern for future success is either made or broken.

If you are going to prepare for the days and months just ahead... plans must be made now. And this organization can help, by placing at your disposal, the experience, the creative resources, the practical "know how" of the nation's most complete printing and packaging organization.

MILPRINT Inc.

PRINTERS · LITHOGRAPHERS · PACKAGING CONVERTERS

MAIN OFFICES: MILWAUKEE
PLANTS AT MILWAUKEE, PHILADELPHIA, LOS ANGELES

Advertising Displays · Booklets · Catalogs · Business Forms · Folding Cartons · All Types of Non-Rigid Packaging Material Including Cellophane · Pliofilm · Foil · Glassine · Waxed Papers · Many Others

WASHINGTON REVIEW

by R. L. Van Boskirk

● **Prospect for Container Materials, 1944**—With one or two possible exceptions it is not likely that there will be any lifting of restrictions on container materials during the coming year. Even though the European phase of the war should end, it would be foolish to predict that the container situation might ease up as a result. The problem of rehabilitating the war-stricken countries and the business of licking Hirohito, with the accompanying transportation and storage problems, is a situation that will drive the container industry to its utmost endeavor. In addition, production of war material is just beginning to reach its zenith and will require more and more containers to meet shipping and storage needs. Even though the manpower situation should ease, there is no positive evidence that any appreciable number of men could be transferred to this industry. Too many factors are involved. The industry will be lucky if it keeps its present manpower, let alone the possibility of getting more.

One of the first and most important duties for every person in the container industry is to cooperate in the Re-Use Campaign and make every possible attempt to see that all containers are used as often as possible. When that is done to its limit a further effort should be made to see that all possible scrap is returned to the mills for re-processing. The waste-paper campaign is moving along, but it is still a mere shell of what it ought to be. Officials report that the Re-Use Campaign is doing surprisingly well in some localities and they are hopeful that between five and ten per cent can be realized. No matter how small the saving, it will still be worth while. We will have a more complete report next month on the progress of this campaign.

WPB officials are reminding the trade constantly that new restrictions may be necessary at any moment, but that every effort will be made to avoid damaging any industry by removing its necessary container needs.

WOOD PULP AND CONTAINER BOARD

Packaging will take somewhere around 60 per cent of all paper production. This includes container board, boxboard, glassine, greaseproof and wrapping papers.

Total paper production for 1944 is estimated to be between 12,000,000 and 13,000,000 tons, which is around 3,000,000 tons less than 1943 or 1942. Therefore a cut of around 25 per cent in paper consumption is in the cards. But Government estimators say that the need for military and essential civilian containers will be more than ever before. Obviously then, there is going to be a terrific squeeze between the various users of paper. Newspapers are not in the habit of coming out second best in any of their struggles with Government. Therefore it would seem that there is going to be a terrific shortage of paper for any other purpose than publishing or containers, but the container people will really have to put on the pressure if they expect to get the necessary material to satisfy their customers and we venture to predict that many more civilian items will be much further restricted in the use of fibre or corrugated containers. Time and again WPB officials say: "We believe there will be plenty of paper for necessary uses." The ominousness of that sentence is in the word "necessary." Many a processor will know more about that word before this year is over.

FOLDING AND SET-UP BOXES

Even though these are made largely from waste paper, they will continue tight, but it is probable that all essential uses will be taken care of. Use of these boxes for food has been stepped-up to almost unbelievable quantities and food is one of the things that must be packaged. Production has gone down from 8,000,000 to 6,000,000, but even if the figures were reversed there would still be little left for other than essential services because the demand has been increased. Such things as carry-outs and the like are gone for the duration and perhaps even for some time afterward.

WOOD BOXES

There is no cause for comfort in the supply of wood boxes. The total lumber consumption in 1943 was around 35,000,000,000 feet and 15,000,000,000 of this was used for boxes, crates and dunnage. Despite all efforts to get more workers in the woods it is believed that production in 1944 will be at least 2,000,000,000 board feet less than in 1943, but the demand for boxes will be at least 500,000,000 board feet more.

The demand comes from the government and works out about like this:

Lend-Lease—Perhaps not so much demand or at least no more than in 1943, despite earlier predictions that demand would increase.

Small Arms—About one-third less boxes needed than in 1943.

Explosives—Less than 1943. Plants are using more fibre for inter-plant shipments.

Artillery ammunition—Large increase.

Quartermaster—Large increase in food shipments. Offensives in all theatres will naturally require more material.

Navy—Increase. Stepping up of Pacific campaigns already indicated and this has great significance to container situation.

Box production is of course suffering because lumber production has gone down. One manufacturer has just reported that lumber was off 20 per cent in his area. Small units in the industry have been more affected than the big ones. Small operators become irritated over government limitation and freeze orders and simply close up shop and go to work somewhere else rather than attempt to understand what is going on.

It is taken more or less for granted that the Armed Services will get enough boxes to satisfy their most important needs, but civilians will no doubt suffer inconveniences. Such things as beverages, fruits and vegetables, fresh fish and the like require great quantities of crates and boxes and it is quite likely that shipments of these items may suffer somewhat from lack of containers during the year.

There was some stir during the month when a few producers demanded lifting of restrictions on wood boxes because there was a surplus in the locality. Container Chief Tomiska immediately replied that no lifting of restrictions could be anticipated because such situations were purely local.

GLASS CONTAINERS

Demand for glass containers will be about the same in 1944 as it was in 1943, but there is little chance that production will increase and according to E. F. Tomiska there is no indication that restrictions will be lifted. He asked that no commercial user of new glass containers make any plans for an easier situation in supply.

NEW TIRES START IN THIS *Crown Cup!*

No... this has nothing to do with synthetic rubber!

It's real rubber latex which is collected deep in the forests of the upper Amazon in these "cups"... manufactured by Crown.

Millions and millions of these metal cups are being shipped to Brazil to be used in tapping the wild rubber trees in the tropical jungles. Early in 1944 the crude rubber collected in these Crown Cups will be moving down the Amazon... and heading for American tire factories.

It was a big order... and a big contribution to our wartime effort. And it's one more demonstration of how Crown is doing its part to keep America rolling toward Victory!

CROWN CAN COMPANY, New York • Philadelphia.
Division of Crown Cork and Seal Company,
Baltimore, Maryland.

CROWN CAN

The industry is still oversold.

The glass industry has been able to meet the heavy demand placed upon it when tin was curtailed only because of the limitations placed upon it by two WPB orders, one of which standardized bottle shapes and another which cut deliveries as low as 65 per cent during a given base period. There has been constant pressure to lift some of the restrictions on this last order but WPB has not yet given any indication of when they might consider a definite change. The Containers Division is attempting through restrictions to equalize supply and demand, and to channel available glass container production to most essential uses. This may result in some adjustments in quotas, but will not increase the available over-all supply.

The re-use campaign is being promoted with fervor by most of the glass consuming industries, especially the beverage producers and it is possible that their efforts will make a great difference in the amount of glass available to those industries which were hit hardest by the limitation order.

ADHESIVES

Adhesive supply looks considerably better than in 1943 except for animal glues which are getting tighter. The number of cattle slaughtered and foreign importations will be the deciding factor in animal glue stocks. The casein situation is improving due to fairly plentiful importations from Argentina but the Argentine political situation is so unsettled that anything might happen. Tapioca at present is in good supply, but like other imported materials, is subject to possible interruption. Corn starch production may decline due to inability to get corn. If it declines to any extent, that will mean an additional load on other starches such as tapioca and tend to unbalance the over-all picture.

TIN

The stockpile is improving largely because so many ways have been found to conserve tin. Despite this factor, WPB officials say that no great change may be expected in the use of tin for containers. They are at present working out a balance so that all necessary items will be supplied with either tin or glass. More cans will probably be made available for essential items because tin can now be made to go farther due to such things as the electrolytic process. This does not mean that tin will be made available for such things as coffee or tobacco, but simply for such items as cannot be packed in other materials. Even if the steel situation should improve, it would make little difference in the tin can situation because that tin stockpile must be carefully guarded.

Considerable amounts of tin have been recovered from old tooth-paste tubes, etc.—even more than went back into tubes, but that conservation measure has run its course and little more can be recovered.

ALUMINUM

This is probably the most confusing of all. Aluminum producers say there is plenty of aluminum, but processing facilities and manpower will prevent its wide use in other than war goods and the most essential items. It is off the critical list, but there is still no possibility that it can be widely used for such things as pots and pans. A government official said that we might look forward to an orderly, but limited, relaxation of the aluminum controls.

Its successful use in cans does not seem probable. Experiments carried on just before the war were never completed to the point where aluminum might be used to replace tin as food containers except in a few instances such as tuna fish.

WPB Order M-1-i, Dec. 4, permits use of aluminum in collapsible tubes, but a prominent manufacturer told us that there are no present available facilities for manufacturing such tubes.

There is lots of talk about aluminum foil in the air, but no definite conclusions as yet. There is a distinct possibility that it may become available in good sized quantities for civilian use. On the other hand, there is another distinct possibility that a new military demand for aluminum foil may require all present facilities. Situation is unsettled until this factor can be determined.

Secondary and scrap aluminum is in plentiful supply, but unfortunately it is not adaptable to packaging uses.

MICROCRYSTALLINE WAX

This item was so short it almost created a small panic last summer, but the situation has eased considerably and looks progressively better. Until the war emergency developed, microcrystalline wax was comparatively unimportant and refiners paid little attention to its possibilities. Since its value in packaging of war goods has been developed, manufacturers have found out how to improve production by new methods of blending and use of extenders. More manufacturing companies have also come into the picture and all unessential uses have been squeezed out of the picture. It looks like an almost brand new war product with great possibilities for peace time application in the packaging industry.

● **More Changes in L-317**—Quota restrictions on fibre shipping containers, as expressed in the most recent amendment to Limitation Order L-317, now provide that in any three-month quota period, the total containerboard content of new fibre-content shipping containers used by a shipper for packing certain products listed in Schedule C of the order, shall exceed neither his footage quota nor his tonnage quota for that use. These restrictions do not apply, however, to empty containers used by the Army or Navy or containers that are quota exempt.

Inventory restrictions have been changed to fix inventories in total number of containers, and now permit a person to divide that number as he sees fit between the various types of containers he uses.

The wording "corrugated or solid fibre (.060 or heavier)" used in defining fibre shipping containers, proved ambiguous, because the thickness provision in the parentheses was supposed to qualify only the words "solid fibre" and not the word "corrugated." To clarify this ambiguity, the phrase now reads "solid fibre (.060 or heavier) or corrugated fibre."

The use of fibre containers for the shipment of refractory materials, such as insulating fire bricks, which are fragile and cannot be shipped without containers, is permitted by the amendment, and, similarly, the shipping of certain tile products, because of their brittle nature.

Schedule B has also been amended to permit the use of fibre containers to ship dairy and milk pails, because pails designed especially as dairy and milk pails must be shipped in containers to avoid rust, corrosion or scratching.

The work-clothing industry has been found unable to ship its products without the use of fibre containers or bailing facilities. Therefore, the amendement has lifted restrictions for a period of thirty days until a satisfactory method of conserving fibreboard can be decided upon.

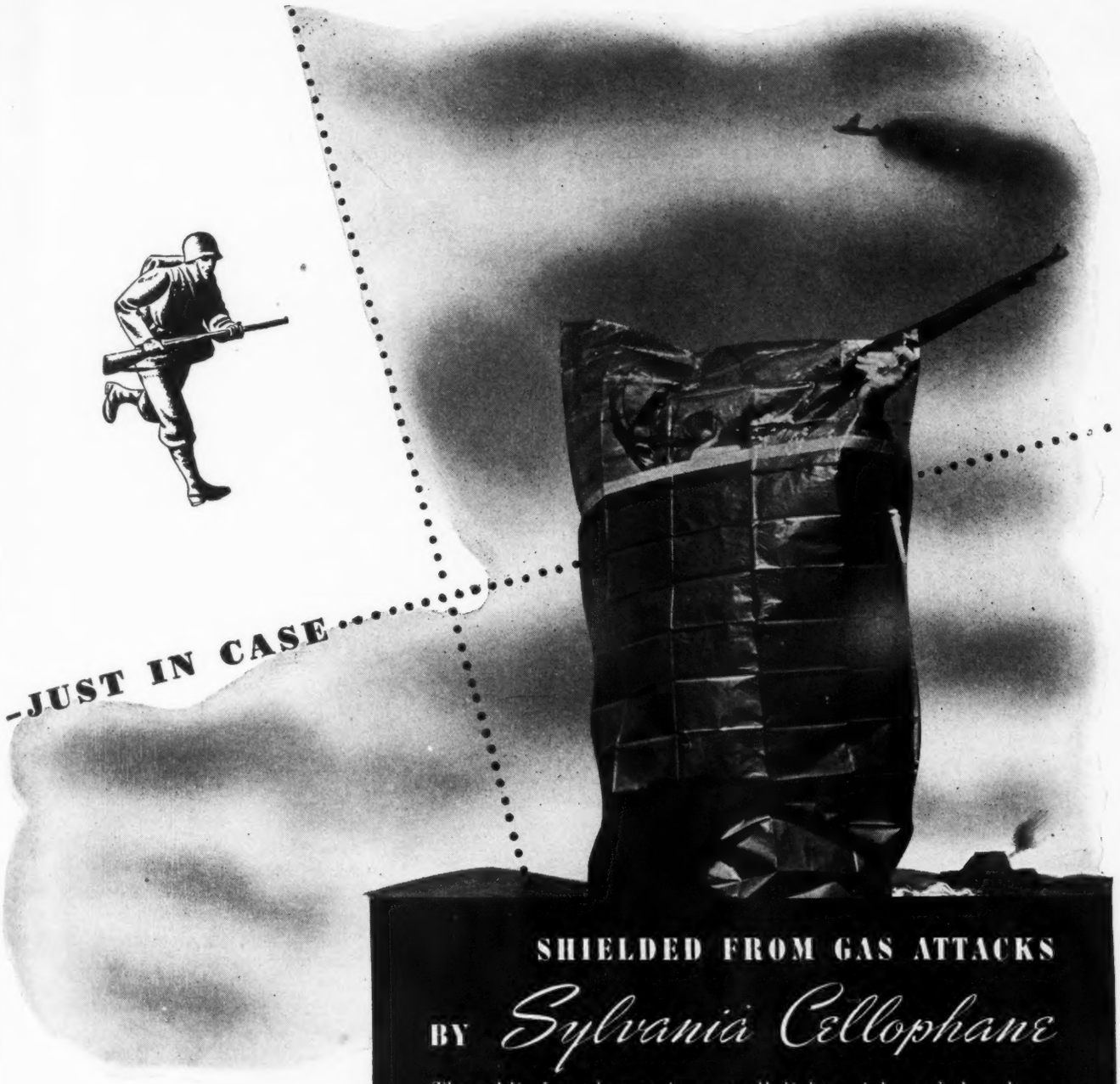
Certain items listed under textiles and leather products have been deleted and added under the subdivision "Miscellaneous," which prevents their shipment in fibreboard containers. Similar considerations prompted the removal of certain items from the subdivision "Leather Products," and the creation of a new subdivision, "Luggage."

The item restricting shipment of glass tableware has been amended to permit the use of fibreboard containers to ship plain tumblers.

Shipments of stationery in fibre containers are fixed under Schedule C, at 80 per cent of the 1942 quotas.

● **Trade Mark Interests to Be Reported**—An order recently announced by Leo T. Crowley, Alien Property Custodian, requires all persons claiming any interest in trade-marks, commercial prints or labels now or formerly owned by nationals of designated foreign countries, to report their interest, including any agreement or claims of ownership, on Form APC-31 by February 1, 1944.

The purposes of the order are to locate and describe whatever interests are held in the United States with respect to trademarks, commercial prints and labels of designated foreign nationals and to obtain information which will aid in the administration of those marks taken over by the Custodian. (*Continued on page 118*)



SHIELDED FROM GAS ATTACKS BY *Sylvania Cellophane*

The soldier's pack contains a small, light weight sealed package. If gas comes he quickly dons his gas mask—reaches for this package—rips the seal—and slips into the cover . . . an open-at-the-bottom cloak of specially constructed Sylvania cellophane! Once inside, he is safe from blister gases . . . they can't get through. He is also free to maneuver his equipment and rifle. Upper third of cloak is transparent . . . he can see through it and fight back.

SYLVANIA INDUSTRIAL CORPORATION
General Sales Office: 122 East 42nd Street, New York 17, N. Y.
Works and Principal Office: Fredericksburg, Virginia

SYLVANIA CELLOPHANE IS SERVING MANY WAR USES

SYLVANIA CELLOPHANE

ARMY E NAVY

*Trade Mark Reg. U.S. Pat. Office

U. S. patent digest

This digest includes each month the more important patents which are of interest to those who are concerned with packaging materials. Copies of patents are available from the U. S. Patent Office, Washington, at ten cents each in currency, money order or certified check; postage stamps are not accepted.

BEVERAGE PACKAGE. H. A. Harriman, Carnegie, Pa. U. S. 2,330,884, Oct. 5. A beverage package comprising a filtering capsule filled with dry coffee, a rigid self-sustaining shell enclosing the capsule and formed of two parts telescoped together in sealing engagement.

CONTAINER. A. R. Rous (to Federal Carton Corp., New York, N. Y.). U. S. 2,330,926, Oct. 5. A carton with a pouring face, said pouring face having an inner and outer wall and intermediate wall between said two, and said inner and outer walls having aligned pouring openings.

SELF-CLOSING CONTAINER CLOSURE. R. W. Wilson (one half to W. G. Thompson). U. S. 2,330,030, Oct. 5. A self-closing closure for containers comprising a neck shell having a curved upper surface provided with a portion through which material may be dispensed, and formed with a pair of diametrically opposed, non-circularly shaped recesses, a cap mounted in nested relation to shell.

PASTE TUBE CLOSURE MEANS C. J. Peak, San Francisco, Calif. U. S 2,331,078, Oct. 5. A collapsible paste tube, a tube body formed at one end to have opposite sides disposed in contacting relation forming a straight transverse body, said edge having an outlet opening cut therein at said edge, a sheet of stretchable material secured across said edge to cover said opening and having a slit coinciding with the opening through which material may be expelled, and resilient jaw members carried by the tube and engaging over said sheet and slit to normally close the slit, said jaw members being separable to facilitate the extrusion of the contents of the tube through said slit.

PACKAGING MACHINE. W. J. Fedorchak, J. R. Johnson & A. S. Wood (to Owens-Illinois Glass Co. of Ohio). U. S. 2,331,081, Oct. 5. A packaging apparatus comprising means for advancing a carton intermittently step by step through an article receiving zone.

LABEL FEEDING & APPLYING MECHANISM. C. J. Malhiot (to F. B. Redington, Chicago). U. S. 2,330,830, Oct. 5. An apparatus for supporting a plurality of sheet members in a stack and means for feeding said sheet members onto a pair of feed rollers.

DISPLAY CONTAINER. W. R. Tuttle & C. W. Stickel (to Kurlask Co., Inc., Rochester, N. Y.). U. S. 2,331,361, Oct. 12. A display container comprising a box body in the form of a hollow vessel with an opening having a top panel adjoining said opening having hinged top when in open position to form a display.

PACKING & DISPLAY CONTAINER. R. Guyer (to Waldorf Paper Pdts. Co., St. Paul, Minn.). U. S. 2,331,551, Oct. 12. A packing and display container having a base with walls foldably secured thereto to extend at right angles or to fold outwardly to expand the body.

COLLAPSIBLE CONTAINER. G. A. Trost (to Fleishhacker Paper Box Co., San Francisco). U. S. 2,331,582, Oct. 12. A collapsible box from a single blank of pliable material having right-angled fold lines formed therein and defining a rectangular bottom, sides and end walls of the box.

SEAT FOR PACKAGE BINDING STRANDS. R. A. Walker, St. Joseph, Mo. U. S. 2,331,585, Oct. 12. A seat for a binding strand, which is to embrace two sides of a package, which sides meet at an angle to each other.

DISPENSING CARTON. F. L. Broeren (to Marathon Paper Mills Co., Rothschild, Wis.). U. S. 2,331,651, Oct. 12. A dispensing carton suitably scored and cut to provide a front, rear, bottom, end and top panels, said top panel having an integral portion hinged along a substantially longitudinal line extending from one end of the panel to the other.

FASTENER. F. H. N. Wohlers (to Hinde & Dauch Paper Co., Sandusky, Ohio). U. S. 2,331,754, Oct. 12. A box comprising an outer lap with tucks hinged along the free edge thereof, a flap hinged to the edge of a wall of said box along a line which said free edge overlies when the box is closed.

VANITY KIT. L. H. Campos, New York, N. Y. U. S. 2,331,764, Oct. 12. A vanity case being curved to conform to the shape of the lipstick, a powder container having depending walls, said powder container being adapted to slide within said body to position a lipstick against said rear wall.

CHICK SHIPPING BOX. R. C. Marshall, Jr. (to Crook Paper Box Co., North Kansas, Mo.). U. S. 2,331,867, Oct. 12. A shipping box for live poultry, containing traylike sections each being provided with at least two slots.

CONTAINER. G. W. Reese (to American Can Co., New York, N. Y.). U. S. 2,331,346, Oct. 12. A sheet metal container comprising a tubular body.

CLOSURE MEANS FOR TUBES. U. S. 2,331,487, Oct. 12. A cap holder for tubes comprising a plate adapted to be secured to the neck of a tube, which extends laterally and having its outer end looped to form a hinged joint.

BOTTLE WRAPPING DEVICE. W. A. Emery, Wayne, Nebr. U. S. 2,331,543, Oct. 12. A bottle wrapping device comprising two pairs of opposed parallel bars including pivoted adjacent extensions at right angles to the bars. The pressure of the bottle on wrapping member causes them to swing toward each and wrap the wrapper around the bottle.

BOXLIKE BAG. L. Eisgrau, Brooklyn, N. Y. U. S. 2,331,966, Oct. 19. A bellows type of bag and two stiffening inserts within the bag attached to portions of the bellows.

AUTOMATIC BAG FEEDER. H. G. Allen (to Consolidated Packaging Machinery Corp., Buffalo, N. Y.). U. S. 2,332,187, Oct. 19. An automatic bag feeding machine adapted to supply bags individually to bag engaging devices of a filling machine.

DISPLAY PACKAGE. W. H. Taylor (to Crown Fastener Corp., Warren, R. I.). U. S. 2,332,412, Oct. 19. A display package for tapes carrying series of separable fasteners mounted thereon, an elongated non-transparent front panel each of which is a folded lateral extension of the front panel.

PACKAGING. G. N. Fisher (to Kraft Cheese Co., Chicago). U. S. 2,331,901 Oct. 19. A package comprising a tubular paperboard body, paperboard end closure discs in said body at its ends.

CAN INTENDED PARTICULARLY FOR FROZEN PRODUCTS. E. L. Benedict (to Crown Can Co., Philadelphia). U. S. 2,332,551, Oct. 26. In combination a container and closure, the container having an upwardly and inwardly directed tapered mouth portion with a bead on the upper edge, the closure having a skirt tapered to substantially conform to the taper of said mouth portion and overlying same when closure is in sealing position.

Joan:
Thanks for the winter vacation, Mr. Slowey.

Mr. Slowey:
Don't thank me! Thank yourself for realizing the market value of those old bottles in your storeroom.

You were smart enough to realize that those old containers had a real market today because of the shortage of all kinds of packages. When you sold them to me, you not only made money for yourself, but you helped several of my customers who needed these packages to help keep their goods going to market.

We will buy any odd, discontinued or obsolete bottles or bottle caps, either metal or bakelite, plain or lithographed, regardless of size or quantities. In fact any kind of containers including paper or metal cans, compacts and lipsticks.

Write, Wire or Phone Us for a Quotation

Glass Container & Cap Outlet Co.

14 East 17th Street ★ New York, N. Y.

Equipment and Materials

CASE UNLOADER

Louis S. Keeler, Philadelphia, is handling the sales promotion of a bottle or glass container case unloader which is said to run up to the speed of 250 bottles per minute and needs but one attendant to operate. The cases enter a v-shaped roller which opens both outer flaps simultaneously. These flaps are forced into a special trough which separates the case on the edge of the flap and allows the inner flap to drop down. The cases themselves ride upside down on a roller conveyor belt at point "A" shown in the illustration. From there on they gradually separate. The glass is fed to the fillers at the point marked "B" and the cartons tumble to an upright position at the point marked "C." From there the cases go on a belt conveyor which leads to the casing end. A center chain which rides underneath on the bottom of the case holds the inside partition in place.

The tallest bottle handled by the machine so far is $11^1/_4$ in. and this size takes a machine 14 ft. long by 30 in. wide. If necessary the unit could be divided in two, one running at right angles to the other and each 7 ft. 6 in. long. The smaller the container height the smaller the machine has to be.

GLASS CLOSURE FOR HOT PACK?

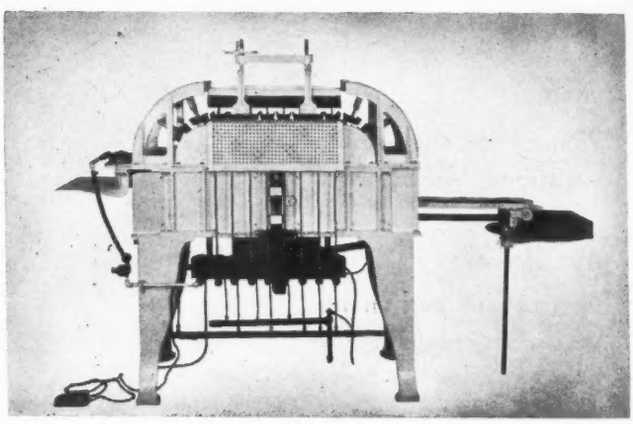
The Hartford-Empire Co., in its experimental plant at Hartford, Conn., has been working on a glass can, glass cap and synthetic rubber gasket for hot-processed foods normally preserved in glass jars or tin cans. The company announced recently that experiments have reached the point where packers are now making actual hot processed trials of the jar. Hartford-Empire offers this new development as a further service in the war materials conservation program.

DEHYDRATING WITH ELECTRONS

A process said to remove 99 per cent of the moisture content from a compressed vegetable block through the use of radio-frequency energy has been developed by Vernon W. Sherman of Federal Telephone and Radio Corp. in cooperation with the office of the Quartermaster General. Conventional dehydration is used to remove 80 per cent of the water content. Then the vegetables are compressed into blocks from which the remaining moisture is reduced to one per cent by radio-freqency energy in a partial vacuum. This method is claimed to be unique in that it compresses the vegetables before the final drying. It is done to concentrate a large amount of food into a small space.

NEW TOGGLE-JAW SEALER

Pack-Rite Machines, Milwaukee, Wis., announces the development of the new Doughboy Toggle-Jaw Sealer. It is claimed that the toggle action of the krimper bars (downward and sideward) results in great pressure, if desired, with only a light touch on the foot pedal. In addition it is said that the Cutler-Hammer rheostat controlling the 4 100-watt brass-sheathed heating elements (two upper, two lower) provides range of heat for any heat-sealing material. The sealer stands $37^1/_2$ in. and is operatable in either a standing or sitting position. It will take care of a bag up to 8 in. wide, applying a 12-line horizontal krimp.



AUTOMATIC AMPOULE WASHER

A washer which automatically feeds, cleanses and discharges ampoules, tubes and other similar glass containers is one of the machines built by PerfeKtum Products Co., New York. The operator of the washer places the unclean tubes or ampoules on the loading channels. After that they are automatically aligned with the washing needles, placed thereon and moved through successive cleansing, washing and drying operations. The ampoules are subjected to the action of a cleansing substance throughout eight stations, discharged on a conveyor and are then ready for the autoclave or for the filling and sealing operations.

NEW STIFFNESS TESTER

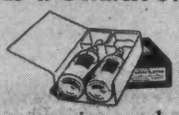
At the Packaging Institute meeting on Tests and Testing, mention was made of the Tour-Marshall stiffness tester made by the Tinnius Olsen Testing Machine Co., Philadelphia. This machine, which tests by cantilever bending, is used for a number of materials, among them being sheet metals, plastic sheet and rod, plywood, paperboard, foil, wire, glass, fabrics and hard rubber. It is equipped with contact light for zero setting when testing metallic specimens. Range is from 0 to 40 in.-lb. of bending moment, by 2 in.-lb. steps. Bending span is adjustable to either 2 or 4 in. A special attachment can be had giving an additional 1-in. span. Standard width of specimen is 1 in., but where desirable a wider vise can be obtained to take specimens up to 2 in. in width. It uses 110 volt, 60 cycle, single phase power.

DID YOU KNOW?

NATIONAL

supplies large quantities of

ADHESIVES & STARCH PRODUCTS



for the protective packaging of HUMAN BLOOD PLASMA.

for forming moisture-vapor-proof cartons for PLASTER OF PARIS (bone setting).

for waterproof labeling of vials, ampules, bottles, etc.

for sterilization-proof sealing of bandages, cotton, etc.

for sizing surgical gauze.

for promoting the growth of life-saving PENICILLIN.

for making & sealing envelopes of powdered sulfa drugs.

for labeling molded plastic containers of malaria preventive.

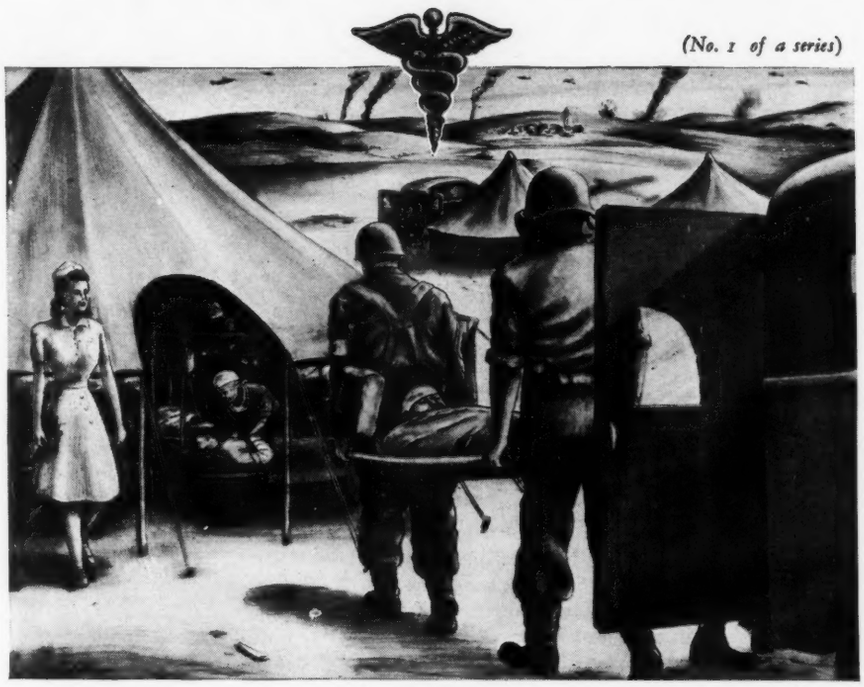
for molding sulfa, aspirin, and other tablets.

for sealing & labeling immersion-proof shipping cases and liners.

&

for many other purposes important to the MEDICAL DEPARTMENT in treating the wounded, comforting the sick, combating disease, strengthening the weak, and mending the broken of body or spirit.

(No. 1 of a series)



THE U. S. ARMY

MEDICAL DEPARTMENT

soothes PAIN . . . saves LIVES

ARMY doctors, nurses, ambulance drivers, stretcher bearers . . . with utter disregard for their own personal safety . . . work tirelessly to soothe pain and save lives on the battlefronts.

Medical Supply Officers here at home procure what is needed to carry on . . . under the most difficult of conditions . . . this great work of mercy.

National is proud of its record with the Medical Department . . . its humble contribution to the gigantic task of supplying field and base hospitals with life-saving medicaments . . . safely, efficiently, and on time.

NATIONAL STARCH PRODUCTS

INCORPORATED

270 MADISON AVENUE · NEW YORK 16 · N. Y.

PLAINFIELD, N. J. · PHILADELPHIA, PA. · BOSTON, MASS. · CHICAGO, ILL.
INDIANAPOLIS, IND. · SAN FRANCISCO, CAL.

Plants and People

J. B. Jeffress, Jr.

S. McKewen

W. H. Funderberg

J. B. Jeffress, Jr., formerly secretary and treasurer of Continental Can Co., has been elected a vice-president of the company, according to Carle C. Conway, chairman of the board. Sherlock McKewen was elected secretary and treasurer, and W. H. Funderburg, formerly in charge of packers' can sales, was put in full charge of all the company's sales.

Paul L. Brachle, formerly local sales manager of Chicago has been appointed sales manager of the central division of packers' can sales, and Clay B. Nichols, formerly sales representative for the state of Wisconsin, is now sales manager of the western division. In addition, Wm. G. Booher, formerly of the Chicago sales office and Ray W. Caldwell, formerly of Owens-Illinois Can Co., have been appointed sales representatives.

The New Jersey Machine Corp., Hoboken, celebrated its 25th anniversary at a dinner for all employees recently. At the affair, Carl H. Lambelet, president, presented a gold watch and an emblem to each of the four employees who have been with the corporation for 25 years. The men to receive the award were Harold Burns, Gustav Wigert, Stephen Marion, and Robert Mittricker. Carl A. Claus, vice-president in charge of sales, recounted some of his experiences during his 22 years' association with the organization and George W. vonHofe, vice-president in charge of production, spoke of plans for postwar activities.

Acme Steel Co. has been awarded the Army Ordnance Banner for meritorious production. The citation stated that the award was for "supplying Ordnance with normal and emergency demands promptly and with the greatest degree of cooperation."

Employees of the company were addressed recently during the Navy "Steel for Victory" drive by a group of veteran U. S. Navy non-commissioned officers, heroes of numerous Atlantic and Pacific area battles. Accompanying the combat veterans were three trucks of Navy armaments and captured enemy equipment.

The new trade sales division of Interchemical Corp. is now organized as the official outlet for all consumer products developed by Interchemical, its divisions and subsidiaries, with home offices and factory at Paterson, N. J.

Gerrard Steel Strapping Co. is the new name for The Gerrard Co., Inc., Chicago. The change, which became effective January 1, 1944, was made to identify the company more readily with the product it manufactures and distributes.

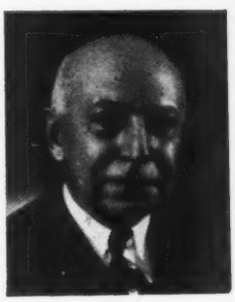
Frank W. Warner succeeds Henry M. Richardson as chief engineer of the plastics divisions of the General Electric Co., Wm. H. Milton, Jr., manager of the divisions, announced recently. Mr. Warner has worked in the plastics division since 1931 and has been in charge of engineering development of all divisions since spring of this year.

John M. Driver, consulting engineer, specializing in package and container design and development, is now associated with Moist-R-Proof Container Co., San Francisco, in an advisory capacity.

Zuckerman-Aldine Bottle & Container Corp., Philadelphia, announces the removal of its offices and warehouse to enlarged quarters at 36th & Reed Sts.

Jules Marcus, president of General Distributors, Inc., of Havana, has just returned from a trip to Mexico where he and his associates established a business as sales representatives and distributors for American manufacturers. In Cuba, General Distributors, Inc., represent such firms as Carr-Lowrey Glass Co., Columbia Specialty Co., Inc., and The Aridor Co. Arrangements have been made to represent these and other companies in Mexico.

U. S. Vitamin Corp. has announced the appointment of E. Leonard Koppel, New York designer, as art director. He will handle the designing of all their packaging and displays.



David C. Everest

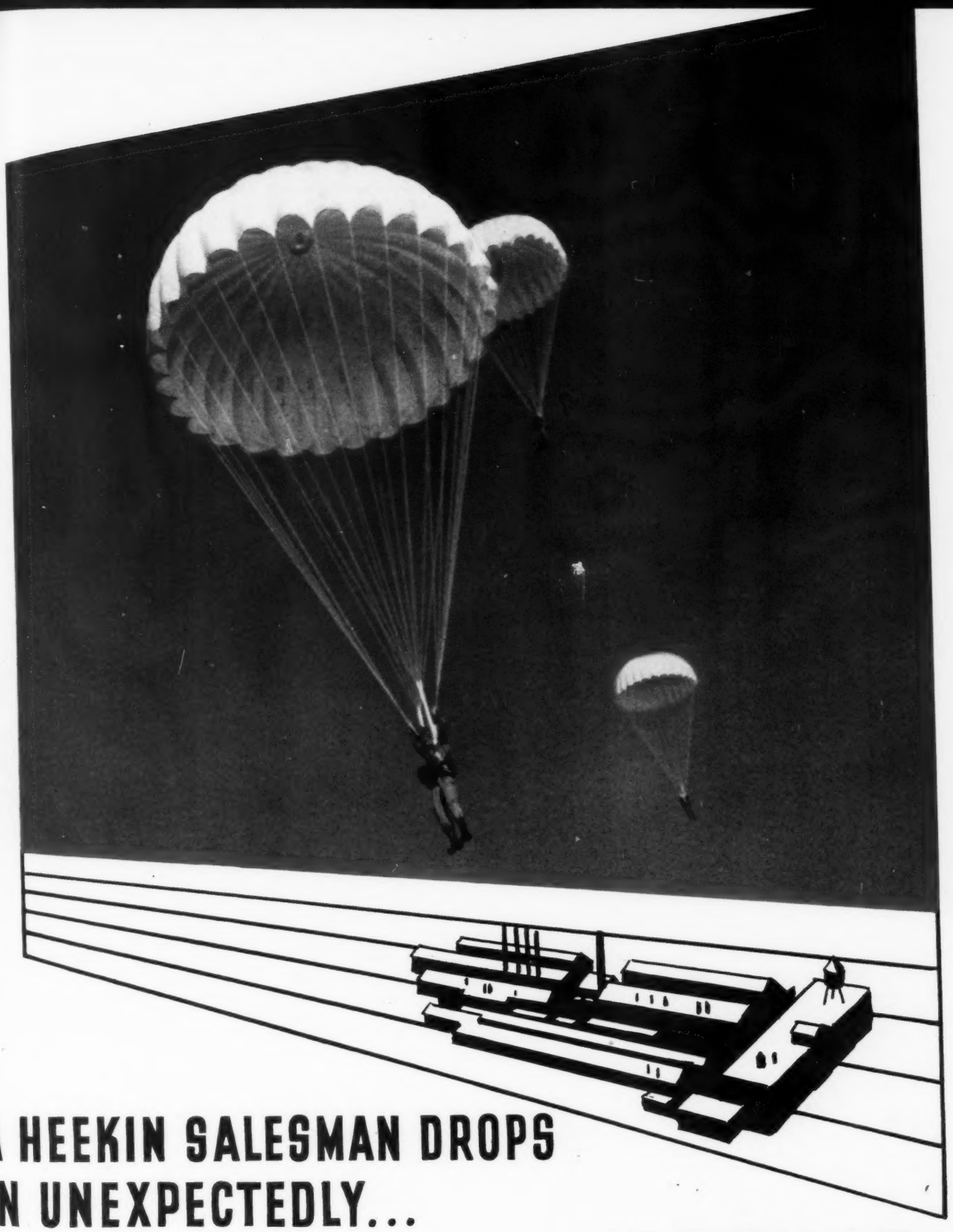
David Clark Everest, president and general manager of the Marathon Paper Mills Co., Rothschild, Wis., will be presented with the 1944 TAPPI medal at the annual luncheon to be held at the Commodore Hotel, New York, February 17, 1944. The TAPPI executive committee unanimously awarded the medal to Mr. Everest as the man who has made outstanding contributions to the technical advancement of the pulp and paper industry. Allen Abrams of the Office of Strategic Services, Washington, will make the presentation address at the luncheon.

Walt Disney and executives of Owens-Illinois Glass Co., conferred recently regarding the place of the motion picture in the postwar industrial world. Owens-Illinois claims to be the first firm to avail itself of the facilities of the new Disney industrial films division. Mr. Disney's organization will make a comprehensive survey and probe the possibilities of using films for the indoctrination, training and entertaining of workers, in selling and in customer service.

Edward Schultz has been appointed purchasing agent of Standard Brands, Inc., to take over the former duties of Thomas R. Baxter, now manager of packaging and packaging development.

R. W. Sulzer has been appointed manager of the Baltimore branch of International Printing Ink, to succeed M. A. Flynn, who died recently. In addition, Norman Hesselbach has been moved up from the service station to the sales force and Spencer Welsh is now supervising production of ink in the service station.

D. W. Figgis, executive vice-president of American Can Co. announced the retirement of 12 veteran workers recently. Four of the retiring employees who have been with the company since its organization in 1901 are: George L. Spence, central division manager of manufacture, Chicago; Preston A. Champney, general traffic manager; Isabel G. Converse, secretary, and Gertrude Murphy, clerk.



A HEEKIN SALESMAN DROPS IN UNEXPECTEDLY...

MEN from the Heekin organization are in this war . . . in all branches of the service. The paratrooper that drops out of a ship over Europe may be a Heekin salesman in peace time. Right now he is trying to sell the enemy a big bill of goods . . . Unconditional Surrender. Right now the home folks in the Heekin factories are producing war materials. Someday these salesmen will be calling on you again. When that time comes, remember Heekin offers you virtually unlimited production on colorful lithographed metal containers . . . in all shapes and sizes. And remember too, that tin keeps it better. The Heekin Can Company, Cincinnati, O.

HEEKIN
Lithographed
CANS
WITH HARMONIZED COLORS

For Your Information

Robert Gair Co., Inc., New York, has given renewed impetus to the Tonawanda Salvage Drive through its two subsidiaries, Fort Niagara Corrugated Box Division, North Tonawanda, N. Y., and Tonawanda Boxboards Division, Tonawanda, N. Y., by the construction of a "Scrap Hut." The hut was constructed of bales of scrap paper and rolls of corrugated paper. Inside the hut were displayed packages made from the board in which waste paper is an essential material. Shell cases, ammunition boxes, medical supply boxes and food cartons were just a few of the boxes on display. The exhibit, according to the company, greatly stimulated the collection of waste paper.

A lens tissue has been developed and is being made for the Navy by the Scott Paper Co. to replace the tissue which formerly came from Japan. The new tissue is made from 100 per cent bleached sulphite pulp and is resin-treated (melamine or urea) for wet strength. The tissue can be used wet whereas the Japanese paper could not. Incidentally, the cost is only $^1/_6$ that of the old tissue. The lens are packed in the tissue for shipment and the newly developed paper can then be used for cleaning and polishing purposes.

An advertising campaign in eight national magazines has been launched by the Can Manufacturers Institute, Inc., according to Gordon E. Cole, advertising director. Theme of the campaign will be the fact that "no other container protects like the can"—both on the battle front and at home. "In the coming months," said Mr. Cole, "we propose to tell the part cans are playing today in the war effort, and to explain why many of us at home are unable to buy in the customary tin containers such products as coffee, tobacco, beer, spices, shortening, toiletries, paint, oil, etc." In addition to the initial magazine advertisements, extensive direct mail and merchandising will be employed and the use of newspapers is contemplated.

A new "smoke float," for Navy use has been developed by the American Can Co. According to R. C. Taylor, vice-president, the new defensive weapon is a sturdy, portable, chemical container that provides means for laying a smoke screen on a moment's notice. A combination of the essential features of the prewar paint pot and the metal smudge-pot used to shield fruit crops from frost, the smoke float is now being turned out at a rate of several thousand a month through application of techniques and machines that produced their peacetime counterparts. The paint pail, which is the heart of the new device, holds the smoke generating chemicals and simple fuse attachment. To keep this unit from sinking, it is equipped with a hollow flotation chamber evolved from the big kettle-shaped smudge-pots. Around these compactly joined units is fitted a perforated open-bottom skirt designed to stabilize the float. Round holes in the outer skirt permit the water to wash through without upsetting the unit and diminishing the smoke dispensing function, although the smoke generates even though the unit may be entirely submerged.

"American Can Company in Wartime" is the title of a booklet recently published by this company. It is a record of American Can's participation in the war effort on the military and civilian fronts through the year 1942. The summary might be of interest to those who have reason to follow the affairs of the company or those who think in terms of what the experience gained in the war effort might have on the general trend of canning and packaging and how to apply it in the immediate future and in the period after the war.

Showing the impact of war on advertising, but cutting much deeper than that, is a new volume entitled, 22nd Annual of Advertising Art, by the Art Directors Club, and published by Watson Guptill Publications, New York. The volume reproduces the outstanding advertisements and art work of the past year. To packagers, the achievements of the commercial artist, as shown in this book, mean a free flowing source of new ideas, a potent weapon to wield in package competition. This book contains not only an excellent set of illustrations but is, as well, a source book for every type of commercial art. Names of the artists are given in conjunction with each of the well choosen and interesting illustrations.

A set of ten brochures covering shipping problems and including the following titles: Packing, Warehousing, Materials, Purchasing & Testing, Selling, Cooperation, Handling & Loading, Sealing, Safety, Export Shipping and Short-Cuts, has been compiled by Shipping Management, Inc., New York. The material used in the compilation of the series was furnished by many experienced and successful businessmen in the shipping world. According to the publishers of "Ten Shipping Management Instruction Brochures," new shipping problems arise every day which only trained men can solve. Through the use of these books, it is claimed, a man can learn advanced shipping management in his spare time. The brochures are not stuffy nor theoretical, but instructive, condensed and made to fit present high-pressure wartime conditions.

Phenyl biguanide, according to T. F. Banigan in his U. S. patent 2,306,371, meets all the requirements for a preservative for wet gel regenerated cellulose pellicles packed in a solution of glycerine and water. The preservative not only protects the softening solution and the cellulosic materials from bacteria and molds, but it also has a pleasant odor and retards fading of developed colors, or inks in the gel bands. It is said that the preservative is non-irritating, colorless, does not cause dermatitis and does not react with iron. According to an example given in the patent, continuous gel regenerated cellulose which has been produced, bleached and washed in the usual manner is impregnated with an aqueous solution comprising glycerine 8 per cent and phenyl biguanide 0.25 per cent by passage through a vat containing the fluid. The tubing, cut to suitable lengths may be used immediately, after draining excess fluid, by application to bottles or it may be stored in the above solution for shipment or later use.

Anchor Hocking invites you to...

MEET CORLISS ARCHER"

America's most amusing radio show... devoted to the sale of fine glass and fine products packed in glass

Bright, bubbling...unpredictable, irrepressible...that's Corliss Archer, the funniest fifteen-year-old who ever came down the pike...a bit wobbly in those first high heels. A forthright and devoted swain... that's Dexter, whose pet expression, "Holy Cow," has become part of America's vocabulary. Happy, heart-warming, irresistible..."Meet Corliss Archer" is the everyday, down-to-earth story of a typical American family.

One of the most entertaining programs ever broadcast, "Meet Corliss Archer" goes on the air for Anchor Hocking every Saturday afternoon over every station in Columbia's full coast-to-coast network... bringing home to a tremendous national audience the advantages of glass...and products packed in glass.

Tune in every Saturday. We know you'll like the show...we think you'll be interested in the commercial message which it carries.

Anchor Hocking Glass Corporation
Lancaster, Ohio

starting January 8th and every Saturday afternoon thereafter

CBS

entire coast-to-coast network.

When aluminum returns—

(*Continued from page 68*) aluminum to hold liquid chemicals which are corrosive to other metal containers. This container is said to be lighter than glass or other metals and is non-breakable. Aluminum for shipping drums offers the two-fold advantage of lightness and resistance to corrosion.

Greatest expansion in aluminum use in packaging is foreseen in the foil market. Several times the prewar average, or perhaps as much as 15,000,000 to 20,000,000 lbs. a year, are expected to be used after the war. For example, one Far West manufacturer has developed a container designed to replace tin cans, steel drums and wood tubs. Said to cost 50 per cent less than tin cans it will utilize aluminum foil as an interliner when it becomes, available.

Another large potential use for aluminum foil has been developed in the form of moistureproof materials for the manufacture of fibre cans. Combined with aluminum foil labels, such fibre containers may find a ready market.

Related to it is the foil-lined fibre paint can. Launched as a wartime product to meet the need for paint containers when metal became scarce, this package offers advantages which may become permanent. Lighter in weight than metal cans, it would save transportation charges, even if it were more expensive in original cost. The new package is made from a spiral-wound tube with an inside layer of foil. This layer, a solid sheet, is laminated to kraft to make it practical for handling and to strengthen the liner.

Further applications of aluminum foil will be for bags, canisters and boxes, either as inner linings or outer wrappings.

Credit: Photos, courtesy Aluminum Co. of America, Reynolds Metals Co., and Moist-R-Proof Container Co.

Manpower vs. machine power

(*Continued from page 74*) sealer and compression conveyor, the open flaps of the carton are sealed at this point in an operation similar to that which took place on the other end of the box at the start of the process. The score is first broken and the outside flaps are folded over. As each carton moves along it passes under a small wheel with an embossing device which code-stamps not only the date but the shift at work, whether morning or evening. Glue is applied to the extended carton flaps by rollers, with folders pushing each flap down in turn. A further journey of several feet on the belt, under pressure from overhead rollers to insure proper sealing of the flaps, terminates the packaging operation.

No time is lost in packing the cartons for shipment. A young woman sitting at the end of the line picks off the cartons three at a time and arranges them in tiers of six inside corrugated cases holding two dozen packages each.

The entire packaging operation has been automatic and continuous, with attendants necessary only to regulate speeds of the various units and to feed materials into the machine and remove the finished product at the end.

Each day a sample lot of ten cases is check-weighed. Since the weight of the shipping cases and other packaging material must be taken into consideration, a "tare" of these is taken daily. A lot of 24 cartons, 24 bags, two sheets of newsprint, a package insert and a shipping case is weighed, and the necessary calculation is made to apply this to the lot of ten cases, with deduction for the mix in the cartons.

Credits: Packaging machinery by Stokes & Smith Co., Philadelphia. Cartons by Robert Gair Co., Inc., New York, and Swayze Folding Box Co., Canton, Pa. Liner bags by Benjamin C. Betner Co., Devon, Pa., and Tappen & Indruk Co., New York.

Alcoa predicts 10-fold increase for aluminum packaging

Packaging will share after the war in the tremendous wartime expansion of aluminum production capacity, according to the estimates of the Aluminum Co. of America's postwar planners. Highlights of a study of aluminum's past, present and future were disclosed December 16 at conferences incident to celebration of the twenty-fifth anniversary of the Aluminum Research Laboratories at New Kensington, Pa., which were attended by several hundred industrialists, scientists, Government officials and newspaper and magazine representatives.

Demonstrated prewar usefulness of aluminum in packaging, plus the gratifying manner in which aluminum is meeting wartime packaging problems, will have a definite influence on the postwar packaging field, the conferees were told. Leaders in the food and related industries are exhibiting great interest in the war applications of aluminum and it is expected that when the metal is again available for civilian products the demand for its use in foil, closures, collapsible tubes and containers will run into tremendous tonnage, the Alcoa research men said.

Tracing the expansion of aluminum production from the prewar average of 182,000,000 lbs. a year to present capacity of 2,100,000,000 lbs. a year—coincident with a price reduction from 20 cents to 15 cents a pound—tables were presented showing the trend of packaging uses. In November, 1939, the figures revealed, food, beverage and general packaging uses accounted for 8 per cent of all aluminum output. By December, 1940, with increasing over-all production, packaging's share had declined to a little more than 2 per cent and by May, 1942, with the clamping on of wartime restrictions, it had reached zero. The estimate of the Alcoa researchers is, however, that after the war, packaging will take at least 7 per cent of the greatly expanded production, returning to approximately its prewar relative position. Tonnagewise, this would indicate that packaging uses will expand from the approximately 14,560,000 lbs. yearly of the prewar period to a potential postwar 147,000,000 lbs. a year—a more than tenfold expansion.

A feature of the New Kensington conference was the presentation to Dr. Francis C. Frary, director of Alcoa research, of an emblem and a cash award, commemorating his 25 years of research with the company. Arranged in a series of exhibits at the laboratory were scores of illustrated developments ranging from processes for extracting aluminum from bauxite to processes for producing the super-strength alloys now used in making faster and more maneuverable airplanes. The new alloys permit a design strength 25 to 50 per cent higher than previously allowable.

A key to boxboard economy

(*Continued from page 86*) our boxes instead of 1,000 Peters boxes, and in the larger press size which allows more interlocking you can get 1,140 boxes instead of 1,000 Peters boxes.

Next on the list of economical changes is the Arthur-lock box, used in huge quantities for packaging of baked goods and other products. Fig. 5 shows the regular Arthur-lock box; Fig. 6, the substitute. Here, by shortening the front flap, we have been able to interlock the boxes (Fig. 6) to get an extra 100 boxes per thousand on a 44 by 64 layout or about 90 extra per thousand on a 41 by 54 layout. The Arthur-lock does not interlock. Like the Peters box, the Arthur-lock box needs $^3/_8$ of an inch for printed bleed between boxes, whereas the new boxes allow for bleed *within* the confines of the box. This new box has a "trick" cover-closing method, which is easy to teach to packers. The cover is placed down upon the box; then, with both thumbs, the lock is pressed and it snaps into the opening provided for it. This lock holds firmly, yet is easy to open when pressed in. While the Arthur-lock box needs a flap off the front cover (which is the full height of the box) so it can rest on this flap, the new box rests over the front of the box and is equally strong.

The next subject for economy is the open tray used as a container for countless packaged products. In this type of box we can save a considerable amount of board by a simple trick. The standard tray is cut down on the sides to display the contents better, as shown in Fig. 7, but by cutting down the entire side of the box, as in Fig. 8, the same effect is produced but with an amazing difference in layouts. In a tray that is 5 by 7 by $2^1/_2$, a saving of 25 per cent is made with no perceptible change of design.

Another type is the standard retail bakery box, Fig. 9. This box is used in quantities involving vast tonnage of board. In this case, the height and strength of the box is preserved by the high corners of our new boxes, while the sides are lowered, as shown in Fig. 10. The story of another extensive saving can be read in the flat blank illustration, in Fig. 10.

The effect of the war upon supplies is so deep and so vast that none can escape feeling it. If box manufacturers will distribute the available board more evenly, they will be able to service more of their customers and through them, more consumers. If buyers and users of boxes will cooperate with their suppliers, they can be assured of a more lasting board supply and at the same time do their packaging job for less money.

The electrolytic can

(*Continued from page 100*) of enamel applied after soldering was used to protect the area. Therefore, in connection with the use of full enameled electrolytic cans it was decided to determine the effect on the corrosion resistance obtained by striping.

The data in Table VIII show the effectiveness of the application of an enamel stripe at the side seam. The results should be applicable in the near future on hot-dipped cans and also on some electrolytic cans. However, the side-seam stripe does not help to eliminate the localized corrosion on the countersink of the ends on full-enameled electrolytic cans packed with mildly acid products. Until the plate is improved, it will, therefore, not be possible to use full enameled 0.5-lb. electrolytic cans for the packing of mildly acid products even if the cans are side-seam striped.

Washington Review

(*Continued from page 106*)

● **Materials for Containers**—The Containers Division of WPB has pointed out that allotments and preference ratings to get materials needed to manufacture containers or parts (which contain controlled materials) must, in general, be obtained by the manufacturer by filing Form CMP-4B.

If controlled materials are not required for the manufacture of the containers, preference rating assistance to obtain production materials for such items may be obtained by the manufacturer by filing Form WPB-2613 or such other form as may be designated for that purpose. Direction No. 3 to Priorities Regulation No. 3, however, provides exceptions to these rules in some cases. Allotment symbols and preference ratings assigned for MRO supplies under CMP Regulation 5 or 5A may be used to buy materials including controlled materials, for the manufacture of wooden crates and shipping containers only where the purchasers will use the containers themselves and where no parts of the container are made in a captive plant, or if they are, where no more than 50,000 board feet of lumber is bought in any one calendar quarter for making containers and parts in such plant.

● **Wood Pulp on Quarterly Allocations**—Amended General Preference Order M-93 places the allocation of wood pulp on a quarterly basis beginning January 1, 1944. Heretofore, wood pulp has been allocated by WPB on a monthly basis. According to David Graham, administrator of the order and chief of the Office of Pulp Allocation, the changeover to quarterly allocation coincides with a revision of the reports received from the paper industry to include an analysis of the business done by each manufacturer in certain broad classifications of end uses and end users. This analysis is expected to provide the basis of a program determination for pulp and paper for the first quarter of 1944.

● **Direction to M-81 Issued**—Direction No. 1 to Conservation Order M-81 which governs the use of cans was issued by WPB December 11, authorizing the substitution of tinplate waste for frozen tinplate in cases where frozen tinplate is specified as a can material for packing a product under the Order.

● **Carnauba Wax Licenses Granted**—The Chemicals Division of WPB has announced that carnauba wax licenses for the first half of 1944 are now in the hands of wax importers whose applications have been granted. These licenses are based on 60 per cent of each importer's established quota.

Since the carnauba crop is now being harvested in Brazil, it is thought that wax will be available in good quantity during the next several months.

● **New Technical Staff in Paper Division**—WPB announced on December 6 that the War Products Development Section, formerly a part of WPB Pulp and Paper Division, is now designated as the Technical Staff and assigned to the Paper Division, under Rex W. Hovey, Director.

R. J. Zaumeyer is chief of the Technical Staff which will serve the operating branches of the Paper Division. The branches of the Paper Division have been set up as follows:

Fine Paper Branch—Newsprint, Book and Groundwood Paper and Writing Paper Sections.

Coarse Paper Branch—Kraft, Industrial Paper, Specialty

Paper, Glassine and Greaseproof Paper and Tissue Paper Sections.

Converted Paper Products Branch—Sanitary Paper, Stationery, Waterproof Paper, Gummed Tape, Impervious Paper and Miscellaneous Converted Products Sections.

● **Hardware Industry to Study Paperboard Conservation**—WPB's Hardware Industry Advisory Committee at its last meeting in Washington discussed ways and means of conserving folding and set-up boxes used in packaging hardware. The use of larger boxes would seem to be the obvious way to save paperboard since one box in which four items are packed uses only 60 per cent of the material required for two boxes in each of which two items are packed. But if trade practice and consumer habits call for one dozen items per box, for example, instead of two dozen, these practices and habits must be adjusted if the hardware industry is to change its packaging methods.

Gluing paper closures

(*Continued from page 75*) as they came from the fillers. With this method only six girls were required to maintain production.

The third method and final solution is shown in Fig. 3. It adopts the principle of applying the glue to the container shoulder, rather than the closure, prior to filling, and this is done entirely automatically.

A single girl operator takes the containers directly from the carton as received from the manufacturer and feeds them into two parallel lines leading into the glue machine, which was built by the packager from odds and ends of machinery lying around the plant. In each line, the containers move under a moving friction belt which carries them into the gluing position. Here the containers are automatically gripped by rollers, while a wheel coated with cold casein glue rises from the glue pot below. The carton is revolved by the rollers while held against the glue wheel and a narrow band of adhesive is applied near the top.

As the containers emerge from the glue applicator they are stood upright on the track which carries them into a standard powder-filling machine. Two more operators on the other side of the machine apply the closures as the filled containers pass on the same moving track, the glue having by this time reached maximum adhesiveness.

With the third method, the number of girls required for the actual gluing operation is reduced to three and a better, cleaner closure operation is effected, while the same rate of production is maintained.

Questions and answers

(*Continued on page 102*) and sold to a local used bag dealer for distribution. Multiwall paper bag suppliers in most cases can recommend local used-bag dealers who will buy these containers.

Where paper bags have been damaged to the point that they are of no value for re-use they should be sold to scrap paper dealers who in most cases have sufficient labor to segregate the asphalt or wax plies of the bag from the regular kraft paper and have the proper outlets where the scrap paper can be sold. Second-hand bags should never be used for packaging food products because of the danger of contamination.

How Henry Ford ships

(*Continued from page 71*) are removed in the order listed: Spare tire, bumperettes, crash pads, top bow-front brackets, top hold-down straps, top bow pivot bracket assembly, fuel tank container bracket, spare wheel support bracket, front and rear body handles, top bow assembly, steering wheel assembly, windshield assembly, driver's and passenger seat assembly.

Plugs in the axle and differential are removed and replaced with grease for shipping purposes only.

Industrial tape is used on the following openings: Radiator overflow pipe, filter cap, muffler pipe (the muffler is first removed and oil sprayed internally), steering post, carburetor (coated with sealer), breather pipe and air cleaner.

The entire jeep is then raised and the four wheels and tires removed. The brake drum openings are bound with industrial tape to insure an adequate seal. The front and rear metal tie-down straps are then affixed and the bottom of the vehicle sprayed with an anti-rust solution.

The radiator rod is removed and the vehicle placed in the box. A block is used to disengage the clutch pedal, while small boxes containing small parts, such as starter and generator and bags of silica gel are affixed to the bottom of the main crate.

The body is then pulled down and bands placed over the shock absorbers. Hold-down brackets are fastened and loose material—such as tires, bow and windshield—is packed into the body. This done, the ends, sides and top of the box are placed in position and secured with bands of strap iron.

Credit: Pliofilm, The Goodyear Tire & Rubber Co., Akron, Ohio

Boxes for type

(*Continued from page 81*) into the channels of a revolving drum. After a font has been made up on the drum, it is run off into small, round, slotted metal tubes and held in place by pinching the tube at one end and applying a simple metal clip at the other. These tubes are then packaged in a plain, lock-type folding carton.

ATF supplies this multigraph type to two different distributing companies, each of which must stock a complete assortment with its individual label. Ordinarily, this would call for two different packages for each of the many sizes and variations of type, and the foundry would have to carry an enormous stock to meet orders from the two companies.

This problem is neatly simplified by ATF in this manner. The lock-type carton in which the type itself is placed is made of plain cardboard with the manufacturer's stock number, type, size, etc., printed only on one end. This forms the basic package for both distributing companies, but distinctive brand identity for each is provided by a decorative printed sleeve which is simply slipped over the basic package.

This greatly simplifies stocking and handling at the foundry, as both distributors' orders are filled from the same stock and double stocking is avoided.

ATF has found that good packaging pays in the industrial field, just as it pays in the case of merchandise intended for the consumer market.

Credit: Service insignia "sorts" box and multigraph-type box by Robert Gair Co., Inc., New York. Handypack box by Heppe-Hudson Co., Inc., Jersey City, N. J.

Alien patents

(*Continued from page 90*) Neuheiten mit beschrankter Haftung, Berlin, Germany). U. S. 2,252,854, Aug. 19, 1941. Collapsible tubes made of cellulose material.

TUBE CONTAINER. G. Sachsenroder & A. Brossette, Wuppertal-Barmen, Germany. U. S. 2,268,462, Dec. 30, 1941. Dispensing tubes for aqueous substances forming same of cellulosic material by slightly parchmentizing same.

ENVELOPE. W. Rodiger, Berlin, Germany. U. S. 2,281,296, Apr. 28, 1942. An envelope with a closing flap and a substantially non-circular fastening member provided within the central portion of said flap.

ENVELOPE. H. G. Frick, Palermo, Italy. U. S. 2,284,386, May 26. An envelope in combination with a thread extending along an edge of same woven through a line of perforations, and pulling of said thread opens said envelope.

SYSTEM OF WRAPPING ARTICLES. W. Rasch & H. Ballerstein, Wernigerode, Germany. U. S. 2,297,432, Sept. 29, 1942. A process of wrapping articles having at least one substantially plane surface by wrapping sheet around the article in form of a hose, folding over the ends of the hose at surfaces of the article transverse to said plane surface and forcing the wrapped article through a mould channel the inner surfaces of which are formed by brushes effective along a closed line.

Equipment and Machinery

CIGARETTE PACKING MACHINE. A. Ritscher (to United Cigarette Machine Co. A.-G., Dresden-A., Germany). U. S. 1,886,047, Nov. 1, 1932. An apparatus for detecting and setting an ejecting apparatus in operation for an incorrectly filled cigarette or the like.

MACHINE FOR AUTOMATICALLY OPENING SQUARE BOTTOM PAPER BAGS. X. Dambacher (to the Firm Windmoller & Holscher, G. m. b. H., Lengerich, Westphalia, Germany). U. S. 1,886,376, Nov. 8, 1932. A machine for automatically spreading folded square bottom paper bags with means to catch one bag after the other from the delivery end of said pile.

MACHINE FOR WEIGHING AND PACKING POWDERED MATERIAL. A. Andreas, Munster, Germany. U. S. 1,913,868, June 13, 1933. A machine for weighing and filling powdered material into automatically closing valve bags.

CIGARETTE-PACKING MACHINE. J. Neff (to Universelle Cigarettenmaschinen-Fabrik, J. C. Muller & Co., Dresden, Germany). U. S. 1,927,648, Sept. 19. A machine for packing groups of cigarettes comprising a plurality of supply hoppers arranged in vertically stepped relation along the machine.

WRAPPING MACHINES. E. H. Jahne (to Universelle Cigarettenmaschinen-Fabrik, J. C. Muller & Co., Dresden, Germany). U. S. 1,931,440, Oct. 17, 1933. An apparatus for the manufacture, filling and closing of paper or like containers.

BAG FOLDING MACHINE. A. Andreas, Munster, Germany. U. S. 1,942,159, Jan. 2, 1934. Combination of a rotary bag carrier structure and a drum structure axially associated therewith equipped with gripping mechanism to hold the bag to carrier structure, and a folding mechanism to fold over portion of the bag.

MACHINE FOR FILLING AND CORKING BOTTLES OF ANY SHAPE AND DIMENSION. E. F. Dauteuil, St.-Denis, France. U. S. 1,943,208, Jan. 9, 1934. A machine for filling and corking bottles composed of upper and lower fixed plates with a rotatable plate between the fixed plates.

MACHINE FOR FILLING AND CLOSING BAGS. P. Gangler (to Fr. Hesser, Maschinenfabrik-Aktiengesellschaft, Stuttgart-Cannstatt, Germany). U. S. 1,951,572, Mar. 20, 1934. Machine for filling bags, and providing same with a strip of flexible material to one flap, and means for flattening down and folding bag.

BOTTLE CLOSING AND LIKE MACHINE. A. M. Forgensen, Copenhagen, Denmark. U. S. 1,951,936, Mar. 20, 1934. A machine for closing bottles or the like containers by capsules and the like, comprising a column system composed of individual bottle tables having collars and closing devices rotating about a vertical axis.

WRAPPING AND LABELING SMALL ARTICLES. O. Lauenstein, Wernigerode-on-the-Harz, Germany. U. S. 1,976,287, Oct. 9, 1934. Means for wrapping and labeling articles consisting in an axially movable article carrier, wrapper guide means and means for folding wrapper around article.

APPARATUS FOR FILLING CARTONS AND OTHER PACKAGES. C. W. Hartmann, Lyngby, near Copenhagen, Denmark. U. S. 2,034,617, March 17, 1936. In a filling apparatus for cartons a series of carriers, a conveyor, means for rotating the carriers in a circular path above the conveyor.

BAG FILLING AND WEIGHING MACHINE. A. DuBoid, Paris, France. A bag filling and weighing machine for powdered or granular material.

MACHINE FOR MAKING, FILLING, CLOSING, AND WRAPPING BAGS. A. Rambold, Dresden, Germany. U. S. 2,083,000 June 8, 1937. Machine for making, filling, closing and wrapping bags, comprising a vertical core wheel with a horizontal axis having a plurality of radial hollow cores for forming the bag thereround.

FILLING MACHINE. J. G. F. Augustin, Krefeld, Germany (to Verpackungsbedarf G. m. b. H., Herfeld, Germany). U. S. 2,101,232, Dec. 7, 1937. A machine for filling bags and similar receptacles, a supporting frame, a storage bin secured to same, and having a discharge mouth.

CAPPING DEVICE. E. Pommer, Vienna, Austria. U. S. 2,129,359, Sept. 6, 1938. A bottle cap sealing device comprising a sealing head, a cap engaging member and an interconnected collar member spaced from said cap engaging member.

WRAPPING MACHINE. J. Benz, Dusseldorf, Germany. U. S. 2,157,949, May 9, 1939. Apparatus for wrapping substantially rectangular pieces of material adherent to paper, for example butter.

DEVICE FOR FILLING SMALL CONTAINERS. E. Abel, Paris, France. U. S. 2,165,604, July 11, 1939. A device for filling a small container from a reservoir containing a liquid.

LABELING DEVICE. J. Weiss, Berlin-Frohnau, Germany. U. S. 2,214,096, Sept. 10, 1940. A labeling machine for bottles, said bottles being disposed in upright position at intervals upon a conveyor band.

METHOD AND APPARATUS FOR CLOSING PAPER CONTAINERS. G. Meyer-Jagenberg, Dusseldorf, Germany. U. S. 2,257,243, Sept. 30, 1941. A method of sealing open end of a paper container where the walls of such open end are united and formed in a part-length return bend.

BAG FILLING MACHINE. J. G. F. Augustin, Krefeld, Germany. U. S. 2,297,382, Sept. 29, 1942. A centrifugal bag filling machine combining a horizontal plate disc rotatable about a vertical axis.

How labels keep identity

(*Continued from page 63*) excellence is rated according to standards of quality.

Products in the first category derive much of their reputation from the engineering skill of their designers. Products in the latter category, usually sold in packages, must be accepted on faith and confidence in the reputation of their producers. This emphasizes the prestige that derives from established source-identity, as distinguished from the acceptance value of a "standard," however declared. The declaration of a standard is only as good as the integrity of the declarer and only as accurate as the existing facilities for comparing an article with standard specifications for physical properties. Obviously, consumers have not the specialized knowledge or the opportunities to test the qualities that are claimed for various products. It is unreasonable to expect that scientific knowledge, as expressed in official standards, ever will be within the reach of many consumers. The responsibility for compliance with declared standards must rest upon the honesty of producers and their willingness to recognize the authority of official standards.

In view of the admitted value of the brand name as a vital link in the distributive system which has flourished under the freedoms of our social order, it becomes important not to overlook any trends of thinking which, however well intentioned, may ultimately produce sinister effects.

A most insidious threat to the economic system that is symbolized by brand names is seen in any movement to impose *rigid* specifications by government fiat.

"Anything that endangers the free and legitimate use of trademarks and of brand names endangers the economic welfare of the nation," said Congressman Charles A. Halleck of Indiana, speaking before the Sales Executive Club in New York City, June 23, 1943.

If the *range* of qualities of formulas should become straightjacketed by official limitations, the control of merchandising would pass to a politically minded bureaucracy vested with authority but without responsibility. Deprived of the incentive to offer better products, competitive values would subside to the dead level of mediocrity. Whatever the official graders might be pleased to rate as best, by whatever term identified, would be the utmost expected by consumers. A premium quality that lacked official definition would be neither demanded nor offered.

Alfred Eames, president, California Packing Corp., testified before a Sub-Committee of the Committee on Interstate and Foreign Commerce, House of Representatives:

"I know of no single thing or action that could be taken by our government which would be more destructive of our American way of life and of our American economic system and our American industrial system than a movement designed to and which would effectively kill the trademarks of this country. It is the ability to trademark and brand the goods of the country that has made possible our wonderful industrial development and large-scale production, and the low cost for the finished product that has come with a large-scale production. The trademarks have made possible the widespread market across the expanse of our land that has made our industry what it is today."

The attitude of the British in regard to the preservation of brand-name identity despite forced concentration of industry has been very well expressed by Sir Oliver Lyttelton, president of the Board of Trade, when he said in a speech before the House of Commons, "We shall give all the help we can to keeping alive these trademarks."

Naturally, a product that is known by a well-advertised brand name and has achieved public acceptance must be uniform in quality. The public buys once to ascertain the quality. Unless the element of uncertainty is completely eliminated, there is no basis of confidence. The manufacturer who invests large sums to obtain the public confidence must keep faith with his customers. He cannot afford to permit the product to deteriorate in value. This is a challenge to his ingenuity in overcoming the difficulties in obtaining adequate supplies of raw materials. In spite of his best efforts during wartime conditions, some materials may become impossible to obtain. If necessary to modify the composition of his goods, honesty and fair dealing require that the customers shall be duly informed of the modifications or substitutions.

J. H. Van Deventer wrote in an editorial in the *Iron Age*, September 1943,

"No manufacturer can afford to put a brand or a trade name on an inferior product. Anonymity is the only cloak under which the 'just as good' product can be handled and sold. A brand name on a product is the best possible protection for the consumer because it automatically forces the maker of that product to maintain quality."

The style or design of the package is closely associated with the concept of the trademark. It is intended that the one shall suggest the other. If necessary to change the style of package because of inability to obtain the same packaging materials, it is important to retain the same general characteristics. World War II has commandeered many important packaging materials and has forced manufacturers to resort to new types of containers. In most cases the designer seeks to retain the outstanding features of the old design, as far as he is able to do so with the new materials. This is illustrated by the pictures of new designs which accompany the text.

The means by which a packer endeavors to impart individual identity to his package are matters of design, color, brand name and trademark on the label. For example, the name "Libby" in script letters with a blue triangle conveys a definite meaning; a blue Indian arrowhead with a white background suggests Stokely's; the Heinz keystone is familiar to most consumers; a pink label with a flower design suggests Carnation milk. Others could be named at great length.

A trademark that is founded on a combination of colors and design would lose its value if the owner of the mark should change or eliminate the fundamental characteristics. The courts might even hold that the owner had abandoned the trademark. In any event the owner would not be in position to use the courts to enjoin an imitation of the mark which he himself had imitated.

With fewer cans to sell because of food shortages and the rationing of foods, manufacturers are taking advantage of the merchandising power of labels. Particularly is this true of the medium-sized and small canners who do not have the advantages of large national advertising appropriations with which to help keep their brand names alive.

Brand names are at once a privilege and a responsibility—a privilege to seek and serve an economic ideal, the freedom of choice in the market place—a responsibility to recognize the true spirit and meaning of American enterprise and the social order for which this nation is fighting.

Credit: Photo 1—Carton, Fleishhacker Paper Box Co., San Francisco. Label, Stecher-Traung Lithograph Corp., San Francisco. Photos 2, 5, 9—Labels, Stecher-Traung Lithograph Corp., San Francisco. Photo 3—Label, Theo. A. Schmidt Co., Chicago. 4, 7, 8—Labels, United States Printing & Lithograph Co., Cincinnati, Ohio.

Petroleum waxes

(*Continued from page 54*) istics, they are said to differ from blends of waxes that do separate, stratify or throw out some of the added ingredients. They rely on a fibre or other base for their structural strength. They vary from hard non-blocking films to soft permanently plastic films. Most are sealable with heat and pressure. For foodstuffs they are odorless, tasteless and non-toxic. Their melting point varies, depending upon the tasks they are to perform. Application may be made by substantially the same methods as are used for applying other wax coatings.

These thermoplastic synthetic compounds used with paraffin are being used widely for many packages to take the place of microcrystallines. They have been used on Jungle rations, Mountain rations, the 15-in-1 and 10-in-1 rations. They are used on ordnance packaging for small arms. They are protecting such hygroscopic products as powdered eggs. Before the war thermoplastic coatings were adopted by Quaker Oats for their small individual pack and by Standard Brands for Diamalt, Honor Brands for frozen foods. New uses are for Friend's baked beans, A. A. Walter Co. dehydrated soup.

Cellophane cheese wrappers to take the place of foil have been successfully moistureproofed by these thermoplastic compounds. They may be used as a laminating adhesive.

Laboratory tests showed that boxes made from patent-coated-news stock, coated either outside only or inside-outside, provided moisture-vapor resistance in the finished package under 0.10 gram per 100 sq. in. per 24 hours at 100 deg. F. and 90 per cent relative humidity using anhydrous calcium chloride as a pack.

Petroleum waxes are among the oldest materials for imparting water and water-vapor penetration to packages. As packaging became more complex and required higher levels of protection, appearance and quality, the petroleum industry kept pace with its research and production.

This program has been in two directions: first, in improving the commercial grade of wax and finding new grades and mixtures for special purposes; second, in finding material from other industries to combine with waxes to impart unusual properties of strength, film forming and water-vapor transmission.

Future progress will unquestionably be made in the second direction. Chemical research as exemplified by the plastics industry will produce many new synthetics. Some of these, either alone or in combination, will add unusual properties when blended with waxes.

Acknowledgment

MODERN PACKAGING is greatly indebted to the following for source material and interviews in the preparation of this article: "The Use of Petroleum Waxes in Paper Packaging," (1943) a technical bulletin of the Lubricating Department, Process Products Division, Socony-Vacuum Oil Co., Inc., and J. C. Dean, Socony-Vacuum Oil Co., Inc.; B. H. Clary, Bareco Oil Co., now in Office of Petroleum Administration for War; C. A. Boler, Boler Petroleum Co.; Quartermaster Corps Subsistence Laboratory, Chicago; William Geissler, Standard-Knapp Corp.; Robert Gray, Dewey and Almy Chemical Co.; Dearborn Chemical Co.; National Biscuit Co.; American Chicle Co.; General Foods Corp.; Army Ordnance, United States Cartridge Co.; Wheeling Stamping Co.; Sun Tube Co.; American Can Co.; Interstate Folding Box Co.; Sealright Co., Inc.; The Gardner Richardson Co.; Thomas M. Royal & Co.; The American Paper Goods Co.

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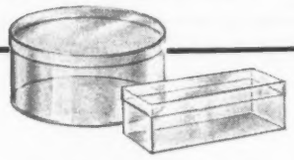
MONSANTO PLASTICS FOR PACKAGING



The Family of Monsanto Plastics is one of the largest, most versatile groups of plastics offered the packaging industry by any one manufacturer. It includes:

Vuepak

Best known of all Monsanto plastics to packagers is *Vuepak*, the rigid, transparent cellulose acetate sheeting which helped sell hundreds of prewar products from lawn seed to toasters by letting prospects *see* the merchandise before they bought. Postwar *Vuepak* will be even tougher and sturdier, yet equally as sleek and transparent.

Molding Compounds

There are three basic types of Monsanto molding compounds. Two, *Fibestos* (cellulose acetate) and *Lustron* (polystyrene) are thermoplastics which can be injection molded with exceptional speed and economy. One, *Resinox* (phenol formaldehyde) is thermosetting, has been widely used for many types of closures. A fourth group of molding compounds, melamine-formaldehydes, is now in development.

Special Resins

Two Monsanto plastics are useful to packagers in resin form . . . *Saflex* (vinyl acetals) and *Resinox* . . . Saflex resins are characterized by low gas permeability and excellent oil resistance. They heat-seal to form strong bonds and can be applied from inexpensive, readily available alcohol solutions . . . *Resinox* resins serve as adhesives and impregnants for paper to which they give greater strength plus resistance to chemicals, water, heat and oils . . . A third group of resins, melamine-formaldehydes, should soon be available for evaluation.

Sheets, Rods, Tubes

Two Monsanto plastics, *Fibestos* and *Nitron* (cellulose nitrate) are supplied in the form of sheets, rods and tubes which answer many special display and packaging problems. A third, *Saflex*, is also supplied in sheets, largely for use as the interlayer in high test safety glass, but new, rubber-like *Saflex* sheets may prove highly useful to the packaging industry as well.

There are some jobs plastics can't fill

A plastic frying pan would be light . . . easy to handle . . . easy to clean. It would also be a sleek and colorful addition to the postwar kitchen.

But once you tried to fry your breakfast bacon in a plastic frying pan—you'd never buy another.

In fact, the chances are you would look with suspicion on any plastics products for some time to come . . . which explains Monsanto's frankly selfish reasons for pointing out the *limitations* as well as the many virtues of plastics.

Plastics are bright and colorful, appealing to the eye and warmly pleasant to touch. They are light in weight, yet surprisingly strong. When combined with other materials, such as paper, cloth, wood and even glass they add many useful properties. They can often be formed into intricate and complicated shapes at substantial savings in production time and cost. They are resistant to chemicals and to atmospheric attack. They are amazingly versatile, doubling in one form for rubber, in another for aluminum and in still another for glass.

But plastics are sensitive to very high temperatures. They cannot match the surface hardness of glass. They are not at their best when merely substituting in a product designed for other materials. To get the most from plastics you usually have to start your design from scratch . . . and work closely with someone who *knows* plastics, yet can also grasp your problems.

This is plain talk, but we think it's the kind of talk you want to hear when you look at plastics as possible raw materials for your products. For our *mutual* benefit, it's the kind of talk you *will* hear from our plastics consultants if you come to us for advice. MONSANTO CHEMICAL COMPANY, Plastics Division, Springfield, Massachusetts.

★ ★ ★

The Broad and Versatile Family of Monsanto Plastics

(Trade names designate Monsanto's exclusive formulations of these basic plastic materials)

LUSTRON (polystyrene) • SAFLEX (vinyl acetal) NITRON (cellulose nitrate) • FIBESTOS (cellulose acetate) • OPALON (cast phenolic resin) RESINOX (phenolic compounds).

Sheets • Rods • Tubes • Molding Compounds Castings • Vuepak Rigid Transparent Packaging Materials.

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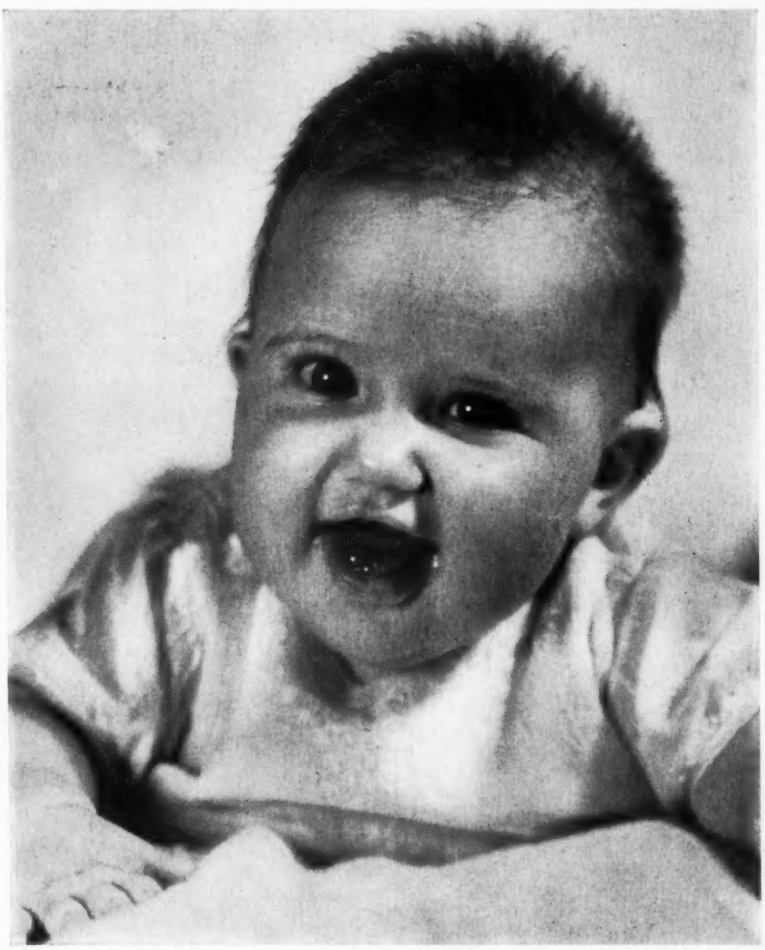

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